

US Army Corps of Engineers

Toxic and Hazardous Materials Agency

PRELIMINARY SITE INSPECTION REPORT FOR FORT STEWART MILITARY RESERVATION

APPENDICES

FINAL

September 1992

Prepared For:
U.S. Army Corps of Engineers
Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, MD

Contract No. DAAA15-90-D-0001, Task 9

Prepared By: Advanced Sciences, Inc. 1250 Brass Mill Road Belcamp, MD 21017

> Unlimited Distribution Approved for Public Release

APPENDIX A SITE INSPECTION REPORT

APPENDIX A

SITE INSPECTION REPORT

Basic Information

Facility Name: _F	ort Stewart		
EPA ID# <u>37</u> -	26-1382-86		
City Hinesville		County Bryan	State GA
Facility Command	ng Officer		
or Chief Executive	Officer Major General Ba	rry R. McCaffrey	
Address:	Commanding General	Headquarters	
1	ghen Infantry Din	ision(m)	
-	Fort Stewart GA 3131	14-2000	
Phone #	(912) 767 - 1110		
Facility Environme	ental		
	ator Thomas Houston		
Address:	AFZP-DEV		
	24th Infantry Divisio	on(m)	
	Fort Stewar GA 317	314-5000	
Phone #	(912) 767 - 2010		
Facility Environme	antal		
		D 1. 051 .	Land of my Mouse
Address:	A EZP DE	MI CONTACT STEEL	morning and Houseau
Address.	AVEN-DE	(m) si	
	Fort Stewa + GA 3	1314.5000	
Phone #	(912) 767 - 8356	13.1	
Facility Major Con	nmand or		
Headquarters Cont	act		
Phone #	() -		
Floric #			
Facility Primary N	fission or Purpose:		
	nary mission of Fort Stewart	is to train and maintair	a mechanized division.
Secondary Mission		and Darman and Assess	National Guard units
Provide	training facilities for U.S. An	my Reserve and Army	ivational Guard units.
-			
-			

Hazardous Waste Types (by Facility Operations:	See Appendix E.	
Other Hazardous Substan	ces see Apple dix L,	
CERCLA 103C Submitted? (Date) Additional Hazardous Wa X Generator TSD Facility	RCRA PART A Submitted? (Date) aste Data (check where applicable): Small Quantity Generator Corrective Action Order	RCRA PART B Submitted? (Date) 5/15/95 1550ED 8/17/87 X Interim Status Violations
**************************************	Attach-ent	
RCRA Corrective Action	is:	
CERCLA Remedial Acti		
-		

Environmental Information

Land Uses Within Facility Boundary:		
XUrbanXSuburban IndustrialXCommercial	X Agricultural Residential	X Recreational Institutional
Potable Water System Serving Within the Fac	ility Boundary:	
Name: Floridian Aquifer		
Number of Connections: 31 (9 in use	- 20 mused, 2 on	. standby)
Source Type: Groundwater X Surfa		
Intake, Well, or Well Distance (feet) from Nearest Facility		
Land Uses With 4-Miles of Facility Boundary	r. Irrigation of	Crof, Lusstock
Intake, Well, or Well Distance (feet) from Nearest Facility	Field	
All Municipal Systems Serving Groundwater V Boundary:		
Name: Cities of Pembroke, Inchmond L	nesure Glen	nul I Daisy
Number of Connections:		1 mile - 5282
Source Type: Groundwater X Surfa	ace Water	itus yds
Intake,X Well, or Well Distance (feet) from Nearest Facility	Field Boundary: 4640,4640	1332 - 7040 repectively
Name:		
Number of Connections:	_	
Source Type: Groundwater Surfa	ace Water	
Intake Well, or Well Distance (feet) from Nearest Facility	Field Boundary:	
Number of Private Potable Groundwater Wel Within 4 miles of Facility Boundary:	ıls	

Geologic and Hydrogeologic Information

Local Bedrock Geophysical Features:		
Karst Fractures Solution	on Pits	Faults
Predominant Local Unsaturated Zone Soil Type:		
Sands Silts Clays		
Local Average Depth (feet) to Water Table:	2-10	
Local Aquifers in Descending Order:		
Water Table Aquifer - Name Surface Depth (feet) Below Land Surface Thickness (feet)	2-10	
Aquifer - Name Upper Floridie Depth (feet) Below Land Surface Thickness (feet)	300-360	
Aquifer - Name	450 400	
Aquifer - Name		
Local Geologic Formations in Descending Order:		
Unit Name Surficial Sediments Depth (feet) Below Land Surface Thickness (feet)	zero	
Unit Name Pleistocene		
Depth (feet) Below Land Surface Thickness (feet)	30	
Unit Name Phocene Depth (feet) Below Land Surface Thickness (feet)		
Unit Name Upper Youcens Depth (feet) Below Land Surface Thickness (feet)		
Source . Huddleton 1929		

Distance (feet) to Private Potable Groundwater Well Closest to Facility Boundary:	
Number of Houses Served by Private Potable Groundwater Wells Within 4 miles of Facility Boundary:	
Estimate Total Population Served by Groundwater Within 4 miles of Facility Boundary:	
Estimate Total Population Served by Surface Water Within 15 miles of Facility Boundary:	
Sensitive Environments on Facility:	
 X Wetlands X Endangered or Threatened Species X Commerical, Subsistance, or Recreational Fishing 	Critical Habitat or Area Fisheries National Monument or Park
Sensitive Environments Within 1-mile of Facility Boundary:	
Wetlands Endangered or Threatened Species Commerical, Subsistance, or Recreational Fishing	Critical Habitat or Area Fisheries National Monument or Park
Sensitive Environments from 1 mile to 15 miles of Facility Bound	dary:
 Wetlands Endangered or Threatened Species Commercial, Subsistance, or Recreational Fishing 	 Critical Habitat or Area Fisheries National Monument or Park
Facility on: 10-year	500-year Floodplain
Distance (feet) to Nearest Off-Facility Residence:	
Number of Workers Living on Facility:	
Number of Other Residents on Facility:	
Number of Workers Working on Facility: military 16 699/0	TC3 FC = 5828 DININAT / SPEE NATION
Describe the Facility Access Controls:	

Water Use Survey for Individual Residences

me and address o	T resident(s)		
neck water source	(s) used by resi	dent(s)	
Drilled well		depth (feet)	water level (feet)
Dug well		depth (feet)	water level (feet)
Spring		Artesian	Gravity
Surface Wa	ter		
Public Supp	oly		
Other			
neck water use(s)	and specify wa	ter source of each	
Drinking		Number of users	Source
Household		Number of users	Source
Irrigation		acres crop _	Source
Other			
ny problems with	water?		
ow long have sou	irces been is us	e?	
ny monitoring we	ells on property	?	
epared by			Date
omments:			

SEPA Potential Hazardous Identification **Waste Site** CERCLIS Number: GA 9210020872 **Preliminary Assessment Form** CERCLIS Discovery Date: July 1, 1980 1. General Site Information Street Address: Fort Stewart military Reservation city: Hinesville State: Zip Code: County: Co. Code: Cong. GA 31314-5000 Liberty Dist: Approximate Area of Site: Status of Site: Latitude: Longitude: Active | Not Specified 279,270 Acres ☐ Inactive ☐ NA (OW plume, etc.) 31 ° 51 · N . " 81 º 36. W. " Square Pt 2. Owner/Operator Information Owner U.S. Army Forces immand Operator: Street Address: Fort Gillen city: Forest Park Zip Code: 30305 Telephone: State: Zip Code: Telephone: GA (404) Type of Ownership: How Initially Identified: ☐ Private ☐ County Citizen Complaint D Federai Program A Pederal Agency ☐ Municipal ☐ PA Petition ☐ Incidental Name U.S Army ☐ Not Specified ☐ Not Specified ☐ State/Local Program ☐ State ☐ Other ☐ RCRA/CERCLA Notification □ Other ☐ Indian 3. Site Evaluator Information Name of Evaluator: Agency/Organization: Date Prepared: John D. mcGows. a Advanced Service October 30, 1991 Street Address: 165 mite ne City: Oak P. Ige State: IN Name of EPA or State Agency Contact: Street Address J.C Maredita Telephone (404) 347-801 Atlanta 4. Site Disposition (for EPA use only) Emergency Response/Removal CERCLIS Recommendation: Signature: Assessment Recommendation: ☐ Higher Priority SI O Yes ☐ Lower Priority SI O NERAP

Name (typed):

Position.

RCRA

Other

□ No

Date:

\$EPA		zardous Waste Site Assessment Form - P	age 2 of 4	CERCLIS Number: GA 9210020872
5. General S	Site Charac	teristics		141,1200 20 012
Predominant Land Us Industrial Commercial Residential Forest/Fields	ica Within 1 Mile of Agriculture Mining DOD DOE	Site (check all that apply): DOI Other Federal Pacility Other	Site Setting: Urban Suburban Rural	Years of Operation: Beginning Year 1940 Ending Year Present
Lumbe	(must check subcate r and Wood Product nic Chemicals and/or Rubber Prod	gory)	age Yard	Waste Generated: ☑ Onsite ☐ Offsite ☐ Onsite and Offsite
☐ Paints,☐ Industr☐ Agricu ☐ Agricu (c.g.,☐ Miscel	Varnishes ial Organic Chemical Itural Chemicals , pesticides, fertilizer laneous Chemical Pr , adhesives, explosiv	Other Lan DOD DOE DOI Other Fed cs, ink)	dfШ	Waste Deposition Authorized By St Present Owner Pormer Owner Present & Pormer Owner Unauthorized Unknown
☐ Metal ☐ Metal ☐ Pabric: ☐ Electro	Coating, Plating, En. Porging, Stamping ated Structural Metal saic Equipment Manufacturing	graving	ge Quantity Generator all Quantity Generator stitle D Municipal Industrial	Waste Accessible to the Public: ☐ Yes ☑ No
☐ Metals ☐ Conl ☐ Oil and ☐ Non-m			otective Filer* on- or Late Filer* fied	Distance to Nearest Dwelling, School, or Workplace: Peet
6. Waste Ci	haracteristi	cs Information		
Source Type: (check all that apply	0	Source Waste Quantity (include units)	Tier : Ocneral Types	of Waste (check all that apply)
 ☑ Landfill ☐ Surface Impoun ☑ Drums ☑ Tanks and Non ☐ Chemical Waste ☐ Scrap Metal or ☐ Tailings Pile ☑ Trash Pile (open ☐ Land Treatment 	Drum Containers Pile Junk Pile n dump)			Hospital Waste 🖸 Explosives Waste 🗆 Other
(unidentified a	ourface Water/Sedimo	-	apply):	of Waste as Deposited (check all that Solid Sludge Powder Liquid Gas

☐ No Sources

* C = Constituent, W = Wastestream, V = Volume, A = Area

3	F	P	A
	_		

Potential Hazardous Waste Site Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

Preliminary Assessment Form - Page 3 of 4 GA 9210020872			
hway			
Is Ground Water Used for Drinking Water Within 4 Miles: Yes No Type of Drinking Water Wells Within 4 Miles (check all that apply): Municipal Private Is There a Suspected Release to Ground Water: Water: Yes No Have Primary Target Drinking Water Wells Been Identified: Yes No		Withdrawn Prom: 0 - ¼ Mile > ¼ - ¼ Mile > ¼ - 1 Mile > 1 - 2 Miles	
Nearest Designated Wellhead Protection Area: Underlies Site > 0 - 4 Miles None Within 4 Miles		>3 - 4 Miles Total Within 4 Mi	iles
thway			
and 15 Miles Downstream (check all Pond Lake Other	Shortest Over	rland Distance From An Peet Miles	y Source to Surface Water:
Is There a Suspected Release to Surface Water: Yes No		☐ Annual - 10 yr Flood ☐ > 10 yr - 100 yr Ploo ☐ > 100 yr - 500 yr Plo	odplain
Drinking Water Intakes Located Along the Surface Water Migration Path: ☐ Yes ☑ No			Water Intakes: Flow (cfs) Population Served
Intakes Been Identified:			
If Yes, Enter Population Served by Primary Target Intakes:		Total within	15 Miles
Pisheries Located Along the Surface Water Migration Path: Yes No Have Primary Target Fisheries Been Identified: Yes No			Flow (cfs)
	Is There a Suspected Release to Grouwater: Yes	Is There a Suspected Release to Oround Water: Yes	Is There a Suspected Release to Ground Water: Si Yes

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2	_	$D\Lambda$	
			١
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Potential Hazardous Waste Site

CERCLIS Number:

Preliminary Assessment Form - Page 4 of 4			GA 9210020872
8. Surface Water Pathway (contin	ued)		
Wetlands Located Along the Surface Water Migration Path: ⊠ Yea □ No	Other Sensitive Env		ted Along the Surface Water Migration Path:
Have Primary Target Wetlands Boen Identified: Yes No	Have Primary Targ		ironments Been Identified:
List Secondary Target Wetlands: Water Body Flow (cfs) Frontage Miles	List Secondary Tar Water Body	get Scasitive Ear	vironments: Plow (cfs) Sensitive Environment Type
9. Soil Exposure Pathway			
Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: Yes No If Yes, Enter Total Resident Population: People	Workers Onsite: ☐ None ☐ 1 - 100 ☐ 101 - 1,000 ☑ >1,000	or Within 200 Contamination	ial Sensitive Environments Been Identified on Peet of Areas of Known or Suspected I: I Yes I No Cach Terrestrial Sensitive Environment:
10. Air Pathway			
Is There a Suspected Release to Air: Yes No Enter Total Population on or Within:	Wetlands Located W ☑ Yes □ No	ithin 4 Miles of	the Site:
Onsite 0 - ¼ Mile > ¼ - ¼ Mile > ½ - 1 Mile	Other Sensitive Env	ironments Locate	ed Within 4 Miles of the Site:
> 1 · 2 Miles	List All Sensitive E		hin 1/3 Mile of the Site; ovironment Type/Wetlands Area (acres)
Total Within 4 Miles	0 - W Mile	N-10-1-10-1-1	
	> 16 - 1/2 Mile		

APPENDIX B
PERMITS ISSUED TO FORT STEWART

State of Georgia Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION

LAND APPLICATION SYSTEM PERMIT

Permit No. GA 03-624

In accordance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), and the Rules and Regulations promulgated pursuant thereto, this permit is issued to the following:

UNITED STATES DEPARTMENT OF THE ARMY Directorage of Engineering and Housing Fort Stewart, Georgia 31314

is authorized to operate the land application system located at

Camp Oliver, Evans County

This permit is conditioned upon the permittee complying with the effluent limitations, monitoring requirements and other conditions set forth in the permit; with the statements and supporting data submitted with the application dated ______July 30, 1990 _____; and with the approved plan of operation and management, all of which are filed with the Environmental Protection Division of the Department of Natural Resources.

This permit is effective on the date signed by the Director of the Environmental Protection Division and is subject to revocation on evidence of noncompliance with any of the provisions of the Georgia Water Quality Control Act or any of the Rules and Regulations promulgated pursuant thereto; or with any presentation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any conditions of this permit.

This permit shall expire at midnight. August 31, 1995.

Signed this 25th. date of October, 1990

1716

Director

Environmental Protection Division

9282 292 716\$ 10.60 16:01:01

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Page 2 of 3 Permit No. GA 03-624

Permit Conditions

- The system shall be operated at maximum efficiency at all times.
 The average daily flow to the wastewater treatment facility shall not exceed 0.070 MGD. The following effluent standards for the discharge to the land application system apply:
 - (A) Biochemical Oxygen Demand (5-Day): The monthly average shall not exceed 50 mg/1.
 - (B) Suspended Solids: The monthly average shall not exceed 90 mg/l.
 - (C) Fecal Coliform Bacteria: The monthly geometric mean shall not exceed 200 per 100 ml.
- Quarterly operating reports shall be submitted to the Environmental Protection Division by the responsible Class III Operator. The operating reports shall be submitted no later than the 15th day of the month following the reporting period to:

Georgia Environmental Protection Division Industrial Wastewater Program 205 Butler Street, S.E. Suite 1070, Floyd Towers East Atlanta, Georgia 30334

This operation report should contain the analytical results of samples taken at the treatment facility, the groundwater monitoring wells, and/or the surface streams as specified in the approved "Plan of Operation and Management." These sampling requirements may be revised if approved by the Division.

All analysis shall be made in accordance with the latest edition of Standard Methods for the Examination of Water and Wastes, Methods for Chemical Analysis of Water and Wastes, or other required methods.

- 3. The wastewater and disposal system must be maintained as a nodischarge system; therefore, additional land for spraying must be utilized if the application rate cannot satisfactorily be handled by the currently approved spray field.
- 4. Certification Requirements (Operation)

The permittee shall insure that the person in responsible charge of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control.

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Certification Requirements (Laboratory)

The permittee shall insure that the person in responsible charge of the laboratory that is completing the laboratory analysis for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Plant Operators Act, as amended, and the Rules promulgated thereunder.

6. Land Application System Monitoring Requirements

(A) Preapplication Treatment Monitoring Requirements

Discharge to Sprayfields

Parameter	Frequency
Flow	Daily*
Biochemical Oxygen Demand (5-Day)**	One/Month
Suspended Solids**	One/Month
pH	One/Month
Fecal Coliform Bacteria	One/Quarter
NO3-N	One/Quarter

^{*} Continuous recording measurements required.

(C) Soil Monitoring

Parameter	Frequency
pН	One/Year
Cation Exchange Capacity	If pH changes by one unit
Percent Base Saturation	If pH changes by one unit
Phosphorus Adsorption	If pH changes by one unit

7. Groundwater

Groundwater leaving the land application system boundaries must meet primary maximum contaminant levels for drinking water. If groundwater samples indicate contamination, the permittee will be required, upon written notification by the Division, to develop a plan which will insure that the primary maximum contaminant levels for drinking water are not exceeded. The plan will be implemented by the permittee immediately upon Division approval.

^{**} Influent to wastewater treatment pond must also be monitored on same frequency.

⁽B) Groundwater monitoring and wells may be required upon written notification by the Division.

Georgia Department of Natural Resources

205 Butler Street, S.E., Suite 1252, Atlanta, Georgia 30334 Joe D. Tanner, Commissioner 404/656-3500

March 4, 1991

Mr. Thomas D. Houston, Chief U. S. Department of the Army Headquarters Fort Stewart Environmental Office Building 1139 Fort Stewart, Georgia 31314-5000

Re: NPDES Permit No. GA 0004308

Dear Mr. Houston:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Clean Water Act, as amended, and the Rules and Regulations promulgated thereunder, we have issued the attached National Pollutant Discharge Elimination System (NPDES) permit for the specified wastewater treatment facility.

Please be advised that on and after the effective date indicated in the attached NPDES permit, the permittee must comply with all the terms, conditions and limitations of this permit.

Sincerely,

Joe D. Tanner Commissioner

JDT:bk Attachment

cc: Mr. John T. Marlar (w/attachment)
U. S. EPA, Region IV

PERMIT NO. GA0004308

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Federal Act," and the Rules and Regulations promulgated pursuant to each of these Acts,

UNITED STATES DEPARTMENT OF THE ARMY Headquarters Fort Stewart Fort Stewart, Georgia 31314

is authorized to discharge from a facility located at

Fort Stewart, Liberty and Bryan Counties

to receiving waters

Tributaries to the Canoochee River

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on March 4, 1991.

This permit and the authorization to discharge shall expire at midnight, February 28, 1996

Signed this 4th. day of March, 1991



Director

Environmental Protection Division

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Evans Army Heliport Package During the period beginning effective date and lasting through February 28, 1996, Treatment Plant, Fort Stewart. 1:

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic		Disc	Discharge Limitations	tions		Monito	Monitoring Requirements	s l
	Mass	Based		Concentration Based	on Based	Measurement	Sample	Sample
	Daily Avg.	Avg.	Daily Max.	Daily Avg. Daily Max.	Daily Max.	Frequency	Type	Location
Flow (MGD)	•	.035	.035	1	·	Daily	Flow Measuring Device	Effluent
Biochemical Oxygen Demand (mg/l)			1	20	30	Monthly	Monthly 24-Hr.Composite Effluent	Effluent
Suspended Solids (mg/l)			ī	30	45	Monthly	24-Hr.Composite Effluent	Effluent
Fecal Coliform Bacteria	mple) -		,	200	400	Monthly	Grab	Effluent
Ammonia Nitrogen (mg/l)				5.0	7.5	Monthly	24-Hr.Composite	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

the permittee is authorized to discharge from outfall(s) serial number(s) 002 - Tac-X Package Treatment During the period beginning effective date and lasting through February 28, 1996, Plant, Fort Stewart. 2.

Such discharges shall be limited and monitored by the permittee as specified below:

Rffluent Characteristic	Disc	Discharge Limitations	ions		Monitorir	Monitoring Requirements	
	Mass Based		Concentration Based	P	Measurement	nt Sample	Sample
1	Daily Avg.	Daily Max.	Daily Avg.	Daily Avg. Daily Max.	Frequency	Type	Location
Flow (MGD)	.035	.035	1		Daily	Flow Measuring Device	Effluent
Biochemical Oxygen Demand (mg/1)	r	ï	20	35	Monthly	Monthly 24-Hr.Composite	Effluent
Suspended Solids (mg/l)	x	r	30	45	Monthly	Monthly 24-Hr.Composite Effluent	Effluent
Fecal Coliform Bacteria (number per 100 ml of sample)	- ample)	×	200	400	Monthly	Grab	Effluent
Ammonia Nitrogen (mg/l)			5.0	7.5	Monthly	Monthly 24-Hr.Composite Effluent	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per month by a grab sample at the final effluent. There shall be no discharge of floating solids or visible foam in other than trace amounts.

During the period beginning effective date and lasting through February 28, 1996, the permittee is authorized to discharge from outfall(s) serial number(s) 003 - Industrial Waste Treatment. 3

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Disch	arge Limitat	ions		Monitoring	Monitoring Requirements	
	Mass	Based Conce	Mass Based Concentration Based $(mg/1)$	pa			
	Daily Avg.		Daily Max. Daily Avg. Daily Max.	Daily Max	Measurement Frequency	t Sample Type	Sample Location
Flow (MGD)	1.5	1.5	×	,	Two/Month F	Two/Month Flow Measuring Effluent Device	Effluent
Biochemical Oxygen Demand	- pu	ı	30	45	Two/Month	Grab	Effluent
Suspended Solids	L	1	30	45	Two/Month	Grab	Effluent
Phenols	F,		.25	.50	Two/Month	Grab	Effluent
Oil & Grease	ĭ	1	10	15	Two/Month	Grab	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored twice per month by a grab sample of the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

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B. SCHEDULE OF COMPLIANCE

 The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART I

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Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person who has the authority to act for or on behalf of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Georgia Environmental Protection Division Industrial Wastewater Program 205 Butler Street, S.E. Suite 1070 Atlanta, Georgia 30334

All instances of noncompliance not reported under Part I. B. and C. and Part II. A shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

PART I

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- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to $40\ \text{CFR}\ 136$ unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- The dates the analyses were performed, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

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6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

PART II

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A. MANAGEMENT REQUIREMENTS

Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 μg/l, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 μg/l for acrolein and acrylonitrile, 500 μg/l for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or l mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 µg/l, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

- If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:
- A description of the discharge and cause of noncompliance;
 and

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b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

- a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:
 - A description of the discharge and cause of noncompliance;
 and
 - 2. The period of noncompliance, including exact dates are times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

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b. Any diversion from or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA). For land application of nonhazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of nonhazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

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8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and

PART II

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c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- Violation of any conditions of this permit;
- Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
- 5. Toxic Pollutants and Best Available Technology Economically Achievable

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) and Section 301(b)2 of the Federal Clean Water Act for pollutants, toxic and otherwise,

PART II

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which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

PART II

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12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions. of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Stormwater Runoff

In addition to the outfalls identified in Part I, Section A. of this permit, the permittee is authorized to discharge stormwater runoff from point sources at this facility provided that these discharges do not cause violations of State water quality standards in the receiving streams.

PART II

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17. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

PART III

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Certification Requirements

The permittee shall insure that the person in responsible charge of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control. Operators, other than the person in responsible charge, must obtain certification in Class III operator classification or higher within one year of obtaining employment as an operator of a public wastewater treatment plant.

The permittee shall insure that, when required, the person in responsible charge of the laboratory that is performing the laboratory analyses for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder.

PART III

Page 17 of 17 Permit No. GA0004308

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The permittee may not discharge toxic wastes in concentrations or combinations which are harmful to humans, fish or aquatic life. The permittee shall ensure that the effluent being discharged does not kill 10% or more of the exposed test organisms in 96 hours or less, when the test solution contains volumes of effluent and stream water proportional to the plant design flow and the 7Q10 flow of the receiving stream.

- If toxicity is suspected in the permittee's effluent, the Division may require the permittee to develop a program for whole effluent biomonitoring. The schedule will be as follows;
 - a. Within 90 days of Division notification, a study plan detailing the test methodology and test organisms shall be submitted for conducting forty-eight hour acute static renewal tests of the final effluent. If residual chlorine is present in the final effluent from treatment and/or disinfection processes, a prechlorinated or dechlorinated sample will also be tested.
 - b. Within 90 days of Division approval of the study plan, the permittee will conduct and submit the results of the forty-eight hour static renewal tests.
- 2. If toxicity is found in the permittee's effluent, the permittee shall, within 90 days of written notification by the Division, submit a Toxicity Reduction Evaluation (TRE) plan to the Division. The TRE plan shall detail the action the permittee will implement to eliminate toxicity. Within 270 days of Division approval of the TRE plan, the permittee shall complete implementation of the TRE plan and conduct follow-up biomonitoring of the effluent in accordance with the approved TRE plan. If toxicity is still indicated, the permittee shall continue the TRE plan. The TRE plan shall not be complete until the permittee has eliminated the toxicity in its effluent. On a case specific basis, chronic toxicity testing procedures may be required for the definitive determination that toxicity has been eliminated.
- 3. If toxicity is not indicated initially, or if there are substantial changes in the effluent composition, the permittee may be required to repeat the forty-eight hour static renewal test upon notification by the Division. On a case specific basis, chronic toxicity testing procedures may also be required.

Upon approval by the Division, all study plans and TRE plans will become part of the requirements of this permit.

ENVIRONMENTAL PROTECTION DIVISION DEPARTMENT OF NATURAL RESOURCES STATE OF GEORGIA

PERMIT TO USE GROUNDWATER

PERMIT NUMBER 089-0003 (Renewal)	DATE: August 28, 1990
PERMITTEE'S NAME Department of the Army - Fort Stewart	
PERMITTEE'S ADDRESS Headquarters, 24th Infantry Division, Al	FZP-DEV, Ft. Stewart, Georgia 31314-5000
In accordance with the Provisions of the Groundwater Use Act, (Ga.Laws 1973, p.1273, et seq.) and the Rules and Regulations promulgated pursua obtain, or utilize groundwater in the amount of 5,500,000(a) 4,500,000 from 5 well(s) located at Fort Stewart, Georgia for the purpose of a consumptive use for central water supply.	ant thereto, this Permit is issued to withdraw (Xb) gallons per day
This Permit is conditioned upon the permittee complying with the follow STANDARD CONDITIONS (1) The provisions of the Groundwater Use Act, as amended, or any of the Rules an	(b)Annual Avg. Withdrawal Limit
(2) The Permit shall not be transferred except with the approval of the Division;	
(3) The Groundwater Use Report shall be submitted SEMI-ANNUALLY, unless other (60) days after the above date and every six (6) months thereafter;	rwise designated by the Division,starting sixty
(4) The use of groundwater is limited to the quantities and purpose of the water here	ein specified.
SPECIAL CONDITIONS	
(5) This Permit is valid for ground water withdrawal from the	Floridan Aquifer. No other aquifer
can be used without the approval of the Division. (6) The replacement of any permitted well must receive prior	approval from the Division.
And the additional attached conditions, if any, which are hereby made a part of this P	ermit.
In accordance with the application dated <u>8-21-90</u> and in conformented therein or attached thereto, all of which are filed with the Environmental Resources and are hereby made part of this Permit	mity with the statements and supporting data Protection Division of the Department of Natural
This Permit is effective from the date first above written and is subject to revocat provisions of the Groundwater Use Act, as amended, or any of the Rules and Regurepresentation made in the above mentioned application or the statements and suor with any condition of this permit.	lations promulgated pursuant thereto;or with any
Absent prior revocation in accordance with the above language, this Permit shall August 2000.	expire on the day of
DIRECTOR'S SIGNATURE Direct	
August 20 1000	ronmental Protection Division artment of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION DEPARTMENT OF NATURAL RESOURCES STATE OF GEORGIA

PERMIT TO USE GROUNDWATER

CROONDWATER
DATE:
DATE: February 11, 1980
Fort Stewart
art - Fort Stewart, Ga. 31313 - Liberty County
Act, (Ga.Laws 1972, p.976, et seq., as amended by Ga. Laws ulgated pursuant thereto, this Permit is issued to withdraw ewart, Georgia - Liberty County
vith the following:
ith the following:
NDITIONS of the Rules and Regulations promulgated pursuant thereto;
he Division;
LY,unless otherwise designated by the Division,starting sixty
f the water herein specified.
IONS
er withdrawal of 2,500,000 gpd from the can be used without the approval of the
without prior approval of the Division.
a part of this Permit.
and in conformity with the statements and supporting data Environmental Protection Division of the Department of Natural
ject to revocation on evidence of noncompliance with any of the cules and Regulations promulgated pursuant thereto; or with any ements and supporting data entered therein or attached thereto;
Permit shall expire on the fay of
Director
Director
Environmental Protection Division
Environmental Protection Division Department of Natural Resources

PERMIT NO.

2089 J 1236

COUNTY

LIBERTY



OF PERMIT: DECEMBER 4, 1982

MODIFIED: MARCH 7, 1986

PERMIT TO OPERATE A PUBLIC WATER SYSTEM

In compliance with the provisions of the GEORGIA SAFE DRINKING WATER ACT of 1977, OCGA 12-5-170 et. seq., and the RULES, CHAPTER 391-3-5, adopted pursuant to the ACT

UNITED STATES ARMY

is issued a PERMIT TO OPERATE A PUBLIC WATER SYSTEM named the

, A Community Water System

FORT STEWART - MAIN

and located at

FORT STEWART, GEORGIA

THIS PERMIT to operate the above public water system shall become effective on the date shown above and the permit shall expire at midnight,

December 3, 1992 absent any prior revocation or modification.

THIS PERMIT is issued subject to the terms, conditions and schedules of compliance as follows:

- 1. THE PERMITTEE shall at all times operate the public water system in full compliance with the GEORGIA SAFE DRINKING WATER ACT of 1977, and the RULES, CHAPTER 391-3-5, adopted under the ACT. THE DIRECTOR may modify, suspend or revoke this permit as provided therein.
- 2. THIS PERMIT is transferrable only with a change of ownership. Any Transferee becomes the Permittee and assumes the responsibilities under this Permit. Such Transferee must notify the Division of the transfer in writing immediately.
- THIS PERMIT is further subject to the terms, conditions and schedules of compliance specified on the attached pages.

NVIRONMENTAL PROTECTION DIVISION

Owner: United States Army Effective: December 4, 1982

Modified: March 7, 1986

System: Fort Stewart-Main Water System Permit No.: 2089 J 1236

PERMIT CONDITIONS

4. This permit is for the operation of five (5) wells as sources of water supply as indicated on your application. Any additional sources must have written approval from the Director before installation. Failure to comply will be considered a permit violation.

- 5. The permittee must continuously chlorinate all water distributed by the system to maintain a free chlorine residual of at least 0.5 parts per million in all parts of the distribution system.
- 6. The permittee shall collect and submit, or have collected and submitted to a state certified water supply laboratory, a minimum of twenty-two (22) drinking water samples per month for coliform density analysis on the date assigned during which the system provides water to the public. Date assigned to submit samples: third Tuesday.

Results of these analyses must be maintained by the permittee and reported to the Division in accordance with Section 391-3-5-.15 and .25 of the Rules. Results reported to the Division must be identified by the system ID number 308 922 181 and the results sent to the following address:

Environmental Protection Division Ground Water Program Floyd Towers East, Room 1066 205 Butler Street, S. E. Atlanta, Georgia 30334

7. Operation records must be maintained by the permittee on or near the premises of the water system and available for inspection. A true and correct copy of these records must be sent, by the tenth day of the month following the month being reported, to the following address:

Environmental Protection Division Southeast Regional Office 1200 Glynn Ave. Brunswick, Georgia 31523

Owner: United States Army Effective: December 4, 1982

Modified: March 7, 1986

System: Fort Stewart-Main Water System Permit No.: 2089 J 1236

PERMIT CONDITIONS

8. The permittee shall insure that the person in responsible charge of this public water system is a certified operator in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder, and holds a certification classification consistent with the public water system classification specified by Subparagraph 391-3-5-.48 of the Rules for Safe Drinking Water. A public water system whose only source of water supply is groundwater and serves a population of less than 1000 is only required to have a trained operator.

9. The permittee shall insure that any person employed by the water system as a laboratory analyst, is a certified laboratory analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder. A public water system whose only source of water supply is groundwater and serves a population of less than 1000 is not required to have a certified laboratory analyst.

PERMIT NO. CG1790024

COUNTY Liberty



EFFECTIVE DATE OF PERMIT:

May 28, 1991

PERMIT TO OPERATE A PUBLIC WATER SYSTEM

In compliance with the provisions of the GEORGIA SAFE DRINKING WATER ACT of 1977, OCGA 12-5-170 et. seq., and the RULES, CHAPTER 391-3-5, adopted pursuant to the ACT United States Army

is issued a PERMIT TO OPERATE A PUBLIC WATER SYSTEM named the

Fort Stewart Main Water System Community Water System

and located at

Fort Stewart, Georgia

THIS PERMIT to operate the above public water system shall become effective on the date shown above and the permit shall expire at midnight, absent any prior revocation or modification. May 27, 2001

THIS PERMIT is issued subject to the terms, conditions and schedules of compliance as follows:

- THE PERMITTEE shall at all times operate the public water system in full compliance with the GEORGIA SAFE DRINKING WATER ACT of 1977, and the RULES, CHAPTER 391-3-5, adopted under the ACT. THE DIRECTOR may modify, suspend or revoke this permit as provided therein.
- THIS PERMIT is transferrable only with a change of ownership. Transferee becomes the Permittee and assumes the responsibilities under this Permit. Such Transferee must notify the Division of the transfer in writing immediately.
- THIS PERMIT is further subject to the terms, conditions and schedules of compliance specified on the attached pages.

NMENTAL PROTECTION DIVISION

OWNER: United States Army EFF

EFFECTIVE DATE: May 28, 1991

SYSTEM: Fort Stewart Main Water System

PERMIT NO.: CG1790024

PERMIT CONDITIONS

- 4. This Permit is for the operation of five (5) well(s) as source(s) of water supply as indicated on your application. Any additional sources must have written approval from the Director before use.
- 5. The permittee must provide continuous disinfection by chlorinating all water distributed by the system to maintain a detectable residual of free chlorine in the recommended amount of 0.2 milligrams per liter in all parts of the distribution system, or as specified in Section 391-3-5-.14, as amended, of the Rules for Safe Drinking Water.
- 6. The permittee shall analyze or have analyzed by an EPD certified water supply laboratory a minimum of twenty (20) drinking water samples(s) per month for coliform organisms.

Summaries of these coliform analyses must be maintained by the permittee and reported to the Division as specified in Section 391-3-5-.15 and .30 of the Rules. Results reported to the Division must be identified by the system ID number 1790024 and the results sent, by the tenth day of the month following the month being reported, to the following address:

Environmental Protection Division
Drinking Water Program
Floyd Towers East, Suite 1066
205 Butler Street, SE
Atlanta, Georgia 30334

7. Operation records must be maintained by the permittee on the premises of the water system and be available for inspection. A true and correct copy of the operation records must be sent, by the tenth day of the month following the month being reported, to the following address:

Environmental Protection Division Southeast Georgia Regional Office 1 Conservation Way Brunswick, Georgia 31523-8602

OWNER: United States Army

EFFECTIVE DATE: May 28, 1991

SYSTEM: Fort Stewart Main Water System

PERMIT NO.: CG1790024

PERMIT CONDITIONS

- 8. The permittee shall insure that the person in responsible charge of this public water system is certified as specified in the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules adopted thereunder. The certification classification must be consistent with the public water system classification as specified in Section 391-3-5-.39 of the Rules for Safe Drinking Water.
- 9. Drinking water distributed by the permittee shall not contain any impurity which will cause offense to the sense of sight, taste or smell and shall not be excessively corrosive as to cause degradation of the water quality or deterioration of the distribution system, as specified in Section 391-3-5-.19 and .26 of the Rules for Safe Drinking Water.
- 11. The permittee is required to have a water conservation and cross-connection control plan on file with the Division.

ENVIRONMENTAL PROTECTION DIVISION DEPARTMENT OF NATURAL RESOURCES STATE OF GEORGIA



PERMIT SOLID WASTE HANDLING

Permit Number:	089-	010D(SL) Date: August 23, 1982
Permittee:	Name	Department of the Army
		HQ 24th Infantry Division & Fort Stewart
	Address	ATTN: AFZP-FE (DFAE, Dale Kiefer)
		Fort Stewart Georgia 31313

In accordance with the provisions of the Georgia Solid Waste Management Act, Ga. Laws, pp. 1002 et. seq., as amended, and the Rules promulgated pursuant thereto, this permit is issued for the following operation:

Liberty County, Department of the Army, Disposal Site (Sanitary Landfill) Cantonment Area, Fort Stewart, Hinesville; located east of SR 144 north of main post area.

This permit is conditioned upon the permittee complying with the attached conditions of operation, which are hereby made a part of this permit.

All statements and supporting data submitted to the Environmental Protection Division of the Department of Matural Resources have been evaluated, considered and relied upon in the issuance of this permit.

Unless appealed, this permit is final and effective thirty (30) days after the date shown above, and is subject to modification or revocation on evidence of noncompliance with any of the provisions of the Georgia Solid Waste Management Act, as amended, or any of the Rules promulgated pursuant thereto; or with any representation more in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

J. Leonard Ledbetter, Director
Environmental Protection Division
Department of Natural Resources

Permit No: 089-010D(SL)

Issued To: Department of the Army, Fort Stewart

Conditions for Sanitary Landfill Operation:

 The disposal site shall be under the supervision of a responsible individual, at the disposal site, at all times during operation.

- Solid waste unloading shall be restricted to the working face of the operation in such a manner that waste may be easily incorporated into the sanitary landfill with available equipment.
- Solid waste shall be spread in uniform layers and compacted to its smallest practical volume before covering with earth.
- 4. A uniform compacter layer of clean earth cover at least six (6) inches in depth shall be placed over all exposed solid waste by the end of each day's operation, or more frequently as may be determined by the Division. In no case may solid waste be left uncovered for more than 24 hours.
- A uniform compacted layer of clean earth cover not less than one (1) foot in depth shall be placed over each portion of any intermediate lift following completion of that lift.
- 6. A uniform compacted layer of clean earth cover not less than two (2) feet in depth shall be placed over the final lift not later than one month following placement of solid waste within that lift.
- All-weather access roads shall be provided to the disposal site and provisions shall be made for prompt equipment repair or replacement when needed.
- 8. Access to the sanitary landfill shall be limited to authorized entrances which shall be closed when the site is not in operation.
- 9. The disposal site shall be graded and drained to minimize runoff onto the sanitary landfill, to prevent erosion and to drain water from the surface of the sanitary landfill.
- 10. Scattering of wastes by wind shall be controlled by fencing or other barriers and the entire site shall be policed daily.
- 11. Hazardous wastes shall not be disposed of at this site.
- 12. Suitable measures to control fires that may start shall be provided. Stockpiled soil is considered to be the most satisfactory fire fighting material.
- An area method of landfilling shall be used.
- 14. Adequate surface drainage shall be provided.

Georgia Department of Natural Resources

205 Butler Street, S.E., Suite 1252, Atlanta, Georgia 30334

J. Leonard Ledbetter, Commissioner
404/656-3500

September 1, 1989

Lieutenant Colonel Bernard A. Fontaine, GAARNG Department of Defense, Military Division Office of the Adjutant General Post Office Box 17965 Atlanta, Georgia 30316-0965

III 377

RE: GA. National Guard Training Center NPDES Permit No. GA0027685 Liberty County

Dear Lt. Colonel Fontaine:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Water Pollution Control Act, as amended, and the Rules and Regulations promulgated thereunder, we have issued the attached Tational Pollutant Discharge Elimination System (NPDES) permit for the specified wastewater treatment facility.

Please be advised that on and after the effective date indicated in the attached NPDES permit, the permittee must comply with all the terms, conditions and limitations of this permit.

Sincerely,

Leonard Ledberte

Commissioner

JLL:bk Attachment

cc: Mr. John T. Marlar (w/attachment)
U. S. EPA, Region IV

PERMIT NO. GA0027685

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Federal Act," and the Rules and Regulations promulgated pursuant to each of these Acts,

GEORGIA DEPARTMENT OF DEFENSE, MILITARY DIVISION Office of the Adjutant General P. O. Box 17965
Atlanta, Georgia 30316-0965

is authorized to discharge from a facility located at

National Guard Training Center - Fort Stewart Troupe Avenue and E. 16th Street Liberty County

to receiving waters

Medway River in the Ogeechee River Basin

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on September 1, 1989.

This permit and the authorization to discharge shall expire at midnight, August 31, 1994.

Signed this 1st day of September, 1989



Director,

Environmental Protection Division

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PART I

Note: EPD or Division as used herein means the Environmental Protection Division of the Department of Natural Resources.

A. SPECIAL CONDITIONS

1. MONITORING

The concentration of pollutants in the discharge will be limited as indicated by the table(s) labeled "Effluent Limitations and Monitoring Requirements".

- a. The monthly average, other than for Fecal Coliform Bacteria, is the arithmetic mean of values for samples collected in a period of 30 consecutive days.
- b. The daily maximum is the value for samples collected for the respective time period in (f) and (g) below.
- c. Fecal Coliform Bacteria will be reported as the geometric mean of the values for the samples collected for the respective time periods in (a) and (b) above.
- d. Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC) may be substituted for Biochemical Oxygen Demand (BOD) when a long term BOD:COD or BOD:TOC correlation has been demonstrated.
- e. BOD5 samples for treatment plant effluents shall be collected upstream from point of disinfection.
- f. A composite sample shall consist of samples collected at 2 hour intervals for a period of at least 8 hours, and composited according to flow.
- g. The permittee shall have a primary flow measuring device, installed in accordance with accepted engineering practice. For flow, continuous recording measurements are required.

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STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

the permittee is authorized to discharge from outfall(s) serial number(s) 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 40A, and 41 (Vehicle Wash Racks and During the period beginning effective date and lasting through March 31, 1990, Parts Wash Racks). 1:

Such discharges shall be limited and monitored by the permittee as specified below:

rements	Sample	Location	•	Effluent	Effluent	
ng Requi	Sample	Type	•	Grab	Grab	
Monitoring Requirements	Measurement	Frequency	ï	15 mg/l One/Quarter	40 mg/l One/Quarter Grab	
	ion based	Daily Max.	·	15 mg/l	40 mg/l	
imitations	Concentration based	Daily Avg.	ŗ	10 mg/l	25 mg/l	
Discharge Limitations	Based	Avg. Daily Max. Daily Avg. Daily Max.	•			
	Mass Based	Daily Avg.		ı	ï	
Effluent Characteristic			Flow	Oil and Grease	Total Suspended Solids	

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored on the final effluent once per quarter. There shall be no discharge of floating solids or visible foam in other than trace amounts.

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ENVIRONMENTAL PROTECTION DIVISION DEPARTMENT OF NATURAL RESOURCES STATE OF GEORGIA

the permittee is authorized to discharge from outfall(s) serial number(s) 43 (Tactical Vehicle During the period beginning effective date and lasting through Wash Facility). 2.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic		Discharge	Discharge Limitations	,	Monitori	Monitoring Requirements	ents
	Mass	Mass Based	Concentrat	ion Based	Measurement Sample	Sample	Sample
	Daily Avg	. Daily Max	Avg. Daily Max. Daily Avg. Daily Max.	Daily Max.	Frequency	Type	Location
	•	•	ı		Daily	Continuous Effluent Recording	Effluent
Oil and Grease	Ĭ	·	10 mg/l	15 mg/l	15 mg/l One/Month	Grab	Effluent
Total Suspended Solids	ï	•	25 mg/l	40 mg/1	40 mg/l One/Month	Grab	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units monitored on the final effluent once per month. and shall be

There shall be no discharge of floating solids or visible foam in other than trace amounts.

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B. SCHEDULE OF COMPLIANCE

- The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:
 - All effluent limitations are effective immediately upon issuance of this permit.
 - b. The permittee shall eliminate all discharges from those outfalls listed on page 3 of this permit on or before March 31, 1990.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

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Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

Reporting

Monitoring results obtained during the previous one month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person who has the authority to act for or on behalf of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Georgia Environmental Protection Division Industrial Wastewater Program 205 Butler Street, S.E. Suite 1070, Floyd Towers East Atlanta, Georgia 30334

All instances of noncompliance not reported under Part I. B. and C. and Part II. A shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

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- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- The dates the analyses were performed, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

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6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

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A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 μg/l, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 μg/l for acrolein and acrylonitrile, 500 μg/l for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 $\mu g/l$, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) l mg/l antimony.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

A description of the discharge and cause of noncompliance;
 and

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b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

- a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:
 - A description of the discharge and cause of noncompliance; and
 - 2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

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b. Any diversion from or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer Upon written notification by the overflows or bypasses. Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA). For land application of nonhazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of nonhazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

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8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and

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c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any conditions of this permit;
- Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
- Toxic Pollutants and Best Available Technology Economically Achievable

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) and Section 301(b)2 of the Federal Clean Water Act for pollutants, toxic and otherwise,

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which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

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12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

Stormwater Runoff

In addition to the outfalls identified in Part I, Section A. of this permit, the permittee is authorized to discharge stormwater runoff from point sources at this facility provided that these discharges do not cause violations of State water quality standards in the receiving streams.

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17. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

PART III

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Certification Requirements (Operation)

The permittee shall insure that the person in responsible charge for the daily operation of this wastewater treatment plant is a Certified Operator in accordance with the Georgia Certification of Water and Wastewater Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder and holds a classification consistent with the plant classification specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control. Operators, other than the person in responsible charge, must obtain certification in Class III operator classification or higher within one year of obtaining employment as an operator of a public wastewater treatment plant.

2. Certification Requirements (Laboratory)

The permittee shall insure that, when required, the person in responsible charge of the laboratory that is performing the laboratory analyses for this wastewater treatment plant is a certified Laboratory Analyst in accordance with the Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder.

PART III

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C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The permittee may not discharge toxic wastes in concentrations or combinations which are harmful to humans, fish or aquatic life. The permittee shall ensure that the effluent being discharged does not kill 10% or more of the exposed test organisms in 96 hours or less, when the test solution contains volumes of effluent and stream water proportional to the plant design flow and the 7Q10 flow of the receiving stream.

- If toxicity is suspected in the permittee's effluent, the Division may require the permittee to develop a program for whole effluent biomonitoring. The schedule will be as follows;
 - a. Within 90 days of Division notification, a study plan detailing the test methodology and test organisms shall be submitted for conducting forty-eight hour acute static renewal tests of the final effluent. If residual chlorine is present in the final effluent from treatment and/or disinfection processes, a prechlorinated or dechlorinated sample will also be tested.
 - b. Within 90 days of Division approval of the study plan, the permittee will conduct and submit the results of the forty-eight hour static renewal tests.
- 2. If toxicity is found in the permittee's effluent, the permittee shall, within 90 days of written notification by the Division, submit a Toxicity Reduction Evaluation (TRE) plan to the Division. The TRE plan shall detail the action the permittee will implement to eliminate toxicity. Within 270 days of Division approval of the TRE plan, the permittee shall complete implementation of the TRE plan and conduct follow-up biomonitoring of the effluent in accordance with the approved TRE plan. If toxicity is still indicated, the permittee shall continue the TRE plan. The TRE plan shall not be complete until the permittee has eliminated the toxicity in its effluent. On a case specific basis, chronic toxicity testing procedures may be required for the definitive determination that toxicity has been eliminated.
- 3. If toxicity is not indicated initially, or if there are substantial changes in the effluent composition, the permittee may be required to repeat the forty-eight hour static renewal test upon notification by the Division. On a case specific basis, chronic toxicity testing procedures may also be required.

Upon approval by the Division, all study plans and TRE plans will become part of the requirements of this permit.



State of Georgia

Department of Natural Resources

ENVIRONMENTAL PROTECTION DIVISION



AMENDMENT TO

HAZARDOUS WASTE FACILITY PERMIT

Amendment To Permit No. HW-045 (S&T)

Effective Date
Of Amendment 9/27/89

In accordance with the provisions of the Georgia Hazardous Waste Management Act and the Rules, Chapter 391-3-11, (as amended through June 28, 1988), adopted pursuant to that Act, Permit No. HW-045 (S&T) issued on 8/14/87 to:

Fort Stewart

for the following:

- 1) Storage of 44,500 gallons of hazardous waste in containers
- 2) Treatment of outdated munitions by detonation

Is hereby amended as follows:

- The approved container storage building design is modified to include berms instead of sumps; and
- 2) The EOD treatment facility is closed and removed from the permit.

Reason for Amendment:

Request from permittee

This Permit Amendment is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 5 page(s), which page(s) are a part of this Amendment. This Amendment is hereby made a part of Permit No. HW-045(S) and compliance with this Amendment is hereby ordered.

Director

Environmental Protection Division

Leonard Ledber

Permit Number: HW-045(S&T)

Fort Stewart

SECTION III. CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS (SWMUS) AND OTHER RELEASES

A. Applicability and Certification

- 1. The conditions of this Section apply to the determination of need for, and subsequent implementation of, corrective action for releases from all SWMUs and other releases, both those contained within the facility property boundary and, as required by §12-8-66 of the Georgia Hazardous Waste Management Act, those extending beyond the facility property boundary. All submittals made under this Section shall be certified in accordance with 40 CFR 270.11.
- 2. The conditions of this Section specifically apply to the following SWMUs and other releases identified by the RCRA Facility Assessment (RFA) report which was completed by the Director as of the effective date of this permit as those for which an RFI plan will be required under Condition III.C.l.:
 - Post Landfill
 - Camp Oliver Landfill
 - Tac-X Landfill
 - Burn Pits (7)
 - Explosive Ordnance Disposal Areas (5)
 - Fire Training Pit
 - Old Fire Training Pit
 - DRMO Hazardous Waste Storage Site
 - 724th Tanker Purging Station
 - Motor Pools (30)
 - 724th Battery Shop
 - Industrial Waste Water Treatment Plant
 - a. Equalization Pond
 - b. Sludge Drying Beds
 - Old Sludge Drying Beds
 - Radiator Shop __
 - Wright Air Field
 - a. Land Application
 - b. Lagoon
 - Evans Army Heliport POL Storage Facility
- 3. The conditions of this Section also apply to any other SWMUs or releases discovered subsequent to the completion of the RFA report referenced in Condition III.A.2. or not otherwise identified in the RFA report.

B. RCRA Facility Assessment (RFA)

1. For those SWMUs and releases identified in Condition III.A.3. above, the Permittee shall prepare a RFA report. The report shall describe the methods and specific actions used to determine whether a prior or continuing release of hazardous waste, hazardous constituents or

Permit Number: HW-045(S&T)

Fort Stewart

hazardous waste constituents has occurred. The report must include, at a minimum, the following information and any other appropriate information necessary to determine the need for an RFI as required under Condition III.C.:

Type and function of unit;

. Location of each unit on a topographic map of appropriate scale;

. General dimensions and capacities;

. Dates that the unit was operated:

. Description of the wastes that were placed in the unit; and

- Description of any known releases or spills (to include groundwater data, soil analyses, and/or surface water data).
- 2. The report(s) required under Condition III.B.1. shall be completed and submitted to the Director within sixty (60) days of the date of discovery of any SWMU or release.
- 3. The Director shall review RFA report(s) required under Condition III.B.l. and determine those SWMUs and releases from which residual contamination or continuing releases have resulted, and shall notify the Permittee whether an RFI plan will be required under Condition III.C.2. for those SWMUs or releases.

C. RCRA Facility Investigation (RFI)

- 1. The Permittee shall complete and submit an RFI plan for those units or releases referenced in Condition III.A.2. within six (6) months of the effective date of this permit. The plan shall include a schedule of implementation and a description of the specific actions necessary to determine the nature and extent of releases identified by the RFA report, including potential migration pathways for those releases (i.e. air, land, surface water, and groundwater), actual or potential receptors and applicable background concentrations. The Permittee must provide sufficient justification that migration through a potential pathway is not likely if a potential migration pathway associated with a release is not included in the plan. Such deletions are subject to the approval of the Director.
- 2. The Permittee shall complete and submit an RFI plan for those SWMUs or releases referenced in Condition III.B.3. within ninety (90) days of the date of notification under Condition III.B.3. The plan shall include a schedule of implementation and a description of the specific actions necessary to determine the nature and extent of subject releases, including sources, potential migration pathways (i.e. air, land, surface water, groundwater), actual or potential receptors and applicable background concentrations. The Permittee must provide sufficient justification that migration through a potential pathway is not likely if a potential migration pathway associated with a release is not included in the plan. Such deletions are subject to the approval of the Director.

Permit Number: HW-045(S&T)
Fort Stewart

3. Upon approval by the Director of plan(s) required by Conditions III.C.l. and 2., the Permittee shall conduct the RFI in accordance with the schedule contained in the approved plan.

4. The Permittee shall complete and submit an RFI report in accordance with the schedule contained in the plan required by Conditions III.C.l. and 2. The report shall provide a summary of all activities undertaken during the RFI to implement the approved plan. The report shall provide a complete description of the nature and extent of all releases identified during the RFI including sources, migration pathways, actual or potential receptors and applicable background concentrations. The RFI report shall address all releases which extend beyond the facility property boundary unless the Permittee demonstrates to the Director's satisfaction that, despite the Permittee's best efforts, the Permittee was unable to obtain permission to undertake actions required by the plan(s), or such action is not necessary to protect public health or the environment.

D. Corrective Action

- The Director shall review the RFI report required under Condition III.C.4. Upon determination that the report is complete, the Director shall specify to the Permittee those SWMUs or releases identified in such RFI report for which corrective action conforming to § 264.101(a) will be required.
- 2. Upon notification from the Director that corrective action is needed, the Permittee shall submit a corrective action plan in accordance with a schedule to be determined by the Director. The plan shall provide a description of the corrective measures to be taken with regard to those SWMUs or releases identified under Condition III.D.l., including a schedule of implementation for such corrective action.
- 3. Upon approval by the Director of any plan required by Condition III.D.2., the Permittee shall_implement any required corrective action_ in accordance with the schedule in the approved plan.
- 4. If required to develop a corrective action plan under Condition III.D.2., the Permittee shall apply for a permit modification pursuant to § 270.41 to incorporate the plan into the permit.

E. <u>Interim Measures</u>

 The Permittee may conduct interim measures to contain, remove or treat contamination resulting from the release of hazardous constituents from a SWMU or release in order to protect public health and the environment, upon approval by the Director. Such interim measures may be conducted concurrently with investigations required under the terms of this permit. Permit Number: HW-045(S&T)
Fort Stewart ---

 The Permittee shall notify the Director of any proposed interim measures at least thirty (30) days prior to implementation. The notice shall include a description and a schedule of implementation of any proposed interim measures.

- The Permittee shall give notice to the Director as soon as possible of any planned changes, reduction or additions to the interim measures.
- 4. Incorporation of interim measures into the corrective action plan shall be done in accordance with Condition III.D.3.
- 5. Upon completion of interim measures, the Permittee shall complete and submit an interim measures report. The report shall provide the following information:
 - A description of interim measures implémented;
 - ii. A summary of all data or other information obtained during implementation of interim measures; and
 - iii. A summary of the effectiveness of the interim measures in achieving the objective of Condition III.E.l.

F. Schedule of Compliance

- 1. If the Permittee at any time determines that any plan or report required under Condition III.B., C., D., or E. no longer satisfies the requirements of § 264.101 or this permit for prior or continuing releases of hazardous waste, hazardous constituents or hazardous waste constituents he must submit an amenced plan or report to the Director within ninety (90) days of such determination.
- All plans and schedules shall be subject to approval by the Director prior to implementation. The Permittee shall revise all submittals as specified by the Director.
- -3. For any schedule required by any plan or report, if the time required to complete any interim activity is more than one year, the schedule shall specify interim dates for the submission of reports of progress toward satisfaction of the interim requirements.
 - 4. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Director based on the Permittee's demonstration that sufficient justification for the extension exists.
 - 5. Upon approval by the Director all plans and schedules shall be enforceable as conditions of this permit.

(0325P) "

PERMIT NO. 9711-089-8054-C

COUNTY LIBERTY



EFFECTIVE DATE OF PERMIT: JUN 2 9 1981

PERMIT TO CONSTRUCT

In compliance with the provisions of Georgia's Air Quality Act of 1978 and the Rules and Regulations, Chapter 391-3-1, U.S. ARMY CORPS OF ENGINEERS - SAVANNAH DISTRICT, adopted pursuant to or in effect under that Act,

is issued a Permit to Construct the following:

Post Office Box 889, Savannah, Georgia 31402 One (1) 140 million BTU per hour wood-fired boiler, One (1) Multicyclone, and one (1) venturi scrubber

31314 Central Energy Plant, Building 1412, Fort Stewart, Georgia location:

This Permit to Construct is conditioned upon compliance with all provisions of Georgia's Air Quality Act of 1978, the Rules and Regulations of Chapter 391-3-1 adopted or in effect under that act, or any other condition of this Permit.

This Permit may be subject to revocation, suspension, modification or amendment by the Director for cause including evidence of noncompliance with any of the above; or for any misrepresentation made in the application(s) dated February 4, 1981 , supporting data entered therein or attached thereto, or any subsequent submittals supporting data; or for any alterations affecting the emissions from this source.

Absent prior revocation, suspension, modification or amendment by the Director, this Permit shall expire at midnight, August This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules page(s), which page(s) are a part of this Permit. Contained in or specified on the attached 1

Director Environmental Protection Division

PERMIT NO. 9711-089-8054-C

PAGE 1 of 1

General Requirements

- 1. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- 2. The Permittee shall commence construction of the permitted source within 18 months of the effective date of this permit.
- 3. The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The test results shall be submitted to the Division within thirty (30) days of the completion of testing. Any tests shall be performed and conducted using methods and procedures which have been previously approved by the Division.
- 4. In accordance with Georgia Rules for Air Quality, Chapter 391-3-1-.02(6)(a)2 for wood waste fired combination boilers, the Permittee shall install, calibrate, operate and maintain a continuous monitoring system for the measurement of opacity.
- 5. At no time shall the Permittee operate the wood-fired boiler while any of the existing fossil fuel-fired boilers are in operation.
- 6. The annual consumption of wood waste shall not exceed 100,000 tons. The annual consumption of #6 fuel oil shall not exceed 400,000 gallons.
- 7. When firing the boiler facilities, fuels utilized and methods of firing shall be regulated in such a manner that the total sulfur dioxide and nitrogen oxides emission rates do not exceed 250 tons per year.

Notification, Reporting and Recordkeeping

- 8. The Permittee shall furnish the Division written notification as follows:
 - a. The anticipated date of initial startup of this source, not more than sixty (60) nor less than thirty (30) days prior to such date.
 - b. The actual date of initial startup of this source, within fifteen (15) days after such date.

For purposes of this permit, "startup" shall mean the setting in operation of a source for any purpose.

FORT STEWART

The Fort is classified as a Federal facility. It presently operates (3) three #5 fuel-fired boilers. The 3 boilers are to be shut down and replaced with (1) one 140 x 10^6 BTU/HR wood-fired boiler.

Mr. Mitchell spoke with Roger Phaff on the phone June 5, 1981. Mr. Phaff informed Mr. Mitchell that at any source not classified as a major source, if after all modifications are completed and the source is not a major source, i.e. the emissions do not individually exceed 250 tons/year, then the source is not subject to PSD review, even though it may have been a major source prior to the modification.

The pollutants from the wood-fired boiler will not exceed 250 tons/year and therefore, will not be subject to PSD.

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO PERMIT

AMENDMENT TO PERMIT NO. 9711-089-8054-C

COUNTY

LIBERTY



EFFECTIVE DATE OF AMENDMENT

DEC 9 1981

In accordance with Section 9 of Georgia's Air Quality Act of 1978 (Ga. Law 1978, page 275 et seq, as amended) and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No.

on June 29, 1981 to US ARMY CORPS OF ENGINEERS

Savannah District Post Office Box 889, Savannah, GA 31402

for the following: One (1) 140 million BTU per hour wood-fired boiler, One (1) multicyclone, and one (1) venturi scrubber

is hereby amended as follows: Delete conditions number 5 and 6 of the existing permit and add conditions 5,6,9, and 10 attached to this Amendment.

Reason for Amendment: Fort Stewart would like the option of operating a fuelfired boiler while the woodwaste boiler is operating.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 1 page(s), which page(s) are a part of this Amendment.

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 9711-089-8054-C and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

Director
Environmental Protection Division

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AMENDMENT

PERMIT NO. 9711-089-8054-C

PAGE 1 OF 1

General Requirements

5. The annual consumption of woodwaste shall not exceed 124,000 tons. The annual consumption of No. 6 fuel oil used for startup and flame stabilization in the woodwaste boiler shall not exceed 321,000 gallons. The sulfur content of the No. 6 fuel oil shall not exceed 2.2% by weight.

6. The total steam output of the facility, whether it be soley from the woodwaste boiler or from a combination of oil-fired boiler and woodwaste boiler, shall not exceed 95,000 pounds per hour.

Notification, Reporting and Recordkeeping

- 9. Permittee shall report fuel analyses and usage upon request by the Division:
 - a. The Permittee shall provide the Division analyses of the fuels burned, specifically to include heating value and percent sulfur by weight. The Division shall specify the frequency of sample collection, analyses and submittal. Sample collection and analyses shall be by methods approved by the Division.
 - b. The Permittee shall maintain a record of boiler operation and fuel consumption sufficient to confirm the annual hours of operation of the boiler and quantity of fuel burned. The records shall be retained for inspection or submittal for two years after the year of record.
- 10. The Permittee shall maintain records of the occurrence and duration of the operation of any oil-fired boiler while the woodwaste boiler is in operation. Such records shall be maintained a minimum of two (2) years.

Jeorgia Department of Natural Resources

270 Washington Street, S.W.,

1 825, Atlanta, Georgia 30334 J. Leonard Ledbetter, Commissioner Herold F. Reheis, Assistant Director Environmental Protection Division

JWE 3 1 1985

Mr. Dale Kiefer
Chief, Environmental Office
HDQTRs 24th Infantry Division
AFZP-DEN-E
Environmental Office
Building 1135
Fort Stewart, Georgia 31314

RE: Amendment to Permit No. 9711-089-6355-0

Dear Mr. Kiefer:

Enclosed you will find an Amendment to your Permit No. 9711-089-6355-0, originally written for boilers, an incinerator, and fuel tanks. The new permitted items are the 72 X 10^6 BTU per hour oil-fired boiler built around 1979 and a new 140 X 10^6 BTU per hour wood-fired boiler. Please note the attached new permit conditions, specifically Nos. 5, 6, 8, 10, 11 and 12, which deal with your responsibility to monitor and control the sulfur content of your fuel oil.

The limitations placed upon you by these conditions are to prevent you from emitting more than 250 tons per year of sulfur dioxide. These limits should not be difficult to attain with the wood-fired boiler on line. I have chosen to use the formula (2.5/S) X 1,000,000 gallons per year of No. 5 fuel oil. This allows you to burn more fuel if you use oil with lower sulfur content. For example, 1.25% sulfur allows you to burn 2,000,000 gallons per year, while using 2.5% sulfur oil will mean you can only burn 1,000,000 gallons per year.

As agreed by you on July 10, 1985, you will pull a sample from each truck delivering oil to Fort Stewart. This sample shall be tested for sulfur content. If there is more than one delivery within a two day period, equal volume samples from all trucks delivering in that period shall be mixed. A sample from that mixture shall be tested for sulfur content. Fuel information shall be submitted to the Division as per Condition Nos. 10, 11 and 12.

Feel free to call me at (404)656-4867 if you have any questions.

Sincerely,

John Yntema

Environmental Engineer

John Cholen

Air Pollution Compliance Program

JY:1r Enclosure

c: Southeast Georgia Regional Office



State of Georgia Department of Natural Resources ENVIRONMENTAL PROTECTION DIVISION



AMENDMENT TO AIR QUALITY PERMIT

Amendment To Permit No.

9711-089-6355-0

Effective Date Of Amendment

JUL 3 1 1985

In accordance with Section 9 of Georgia's Air Quality Act of 1978 (Ga. Law 1978, page 275 et seq, as amended) and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. 9711-089-6355-0 issued on Sept. 25, 1978 to Head quarters, 24th Infantry Division and Fort Stewart, DFAE, Environmental Office, Fort Stewart, GA 31314

for the following: Boilers firing natural gas, No. 2 fuel oil, and No. 5 fuel oil, Hesston Model CA-200 incinerator, and fuel storage tanks.

is hereby amended as follows: Add conditions 2 through 14 to existing condition 1.

Reason for Amendment: Additional 72 x 10^6 BTU/hr. boiler firing No. 5 fuel oil, Permit application dated August 30, 1984. Additional 140 x 10^6 BTU/hr. boiler firing waste wood; Permit application dated May 28, 1985. Supplemental information received through July 1, 1985.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 3 page(s), which page(s) are a part of this Amendment.

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 9711-089-6355-0 and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

Director

Environmental Protection Division

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO PERMIT NO. 9711-089-6355-0

PAGE 1 OF 3

General Requirements

- 2. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- 3. The Permittee shall dispose of all solid waste and/or wastewater in a manner acceptable to the Division.
- 4. The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The test results shall be submitted to the Division within 30 days of the completion of testing. Any tests shall be performed and conducted using methods and procedures which have been previously approved by the Division.

Allowable Emissions

5. The total firing of fuel shall be limited such that the total uncontrolled annual emission of sulfur dioxide could not equal or exceed 250 tons. Allowing for some sulfur in wood being burned, the firing fuel oil shall be limited such that the total uncontrolled annual emission of sulfur dioxide could not exceed 235 tons. The annual consumption of fuel oil shall not exceed 2.5 X 1,000,000

gallons. Where S is the average percentage of sulfur in the fuel oil.

6. The Permittee shall fire no fuel oil containing more than 2.5 percent sulfur, by weight.

Monitoring Requirements

- 7. The Permittee shall be required by the Division to install and operate steam flow and/or oil consumption monitors if present recordkeeping system is determined to be inadequate by the Division.
- 8. The Permittee shall monitor fuel oil consumption and sulfur content of fuel oil in order to provide data to verify compliance with condition No. 5. This shall be done using equipment and methods agreed upon by the Division.

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO PERMIT NO. 9711-089-6355-0

PAGE 2 OF 3

Fugitive Emissions

 The Permittee shall take all reasonable precautions with any operation, process, handling, transportation, or storage facilities to prevent fugitive emissions of air contaminants.

Notification, Reporting and Recordkeeping

- 10. The Permittee shall retain records of boiler operation for two years after the date and year of record. The records shall be available for inspection or submittal to the Division upon request and contain:
 - a. Analyses of the fuel oil burned. The analyses shall include such properties as heating value, sulfur content, ash content, moisture and/or other properties specified by the Division. Fuel sampling and analysis frequency and methods shall be approved by the Division.
 - b. Boiler usage sufficient to confirm hours of operation.
 - c. Quantity of fuel oil burned.
- 11. The Permittee shall submit a quarterly report within thirty (30) days following each calendar quarter unless otherwise approved by the Division. The report shall be prepared from records retained in Condition 10, submitted in a manner suitable to the Division and contain:
 - a. A summary of the analyses of the fuel oil burned.
 - b. Total hours of boiler operation for the quarter.
 - c. Total fuel oil consumption for the quarter.
- 12. The Permittee shall submit an annual report by January 30th of the year following the calendar year of record unless otherwise approved by the Division. The report shall be prepared from records retained in Condition 10, submitted in a manner suitable to the Division and contain.
 - a. A summary of the analyses of the fuel oil burned.
 - b. Total hours of boiler operation for the year.
 - c. Total fuel oil consumption for the year.

STATE OF GEORGIA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION DIVISION

AMENDMENT TO PERMIT NO. 9711-089-6355-0

PAGE 3 OF 3

Modifications

13. The Permittee shall give written notification to the Division when there is any modification to this source. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the plant before and after the change; and the anticipated completion date of the change.

Special Conditions

14. At any time that the Division, based upon data on potentially toxic or adverse effects of the compounds emitted from this operation or the availability of improved technology to limit emissions of such compounds, determines that additional control of emissions from the facility may reasonably be needed to provide for the continued protection of public health, safety and welfare, the Division reserves the right to amend the provisions of this Permit without prior notice.

TABLE H-2-1. NPDES PERMIT SUMMARY, HINESVILLE REGIONAL SEWAGE TREATMENT FACILITY

Parameter	Monthly Average
BOD ₅	10 mg/L
TSS	30 mg/L
Ammonia Nitrogen as N	2.0 mg/L
рн	Between 6.0 and 9.0 standard units at all times.
Dissolved Oxygen	Minimum 6.0 mg/L at all times.

TABLE H-2-2. NPDES PERMIT SUMMARY, INDUSTRIAL WASTE TREATMENT PLANT, OUTFALL 003, NPDES NO. GA0004308, FORT STEWART, GEORGIA

stated other	erwise.)	Monitoring Requirements Frequency Type Location			
30	45	2/month	Grab Effluent		
30	45	2/month	Grab Effluent		
1.0	2.0	2/month	Grab Effluent		
10	15	2/month	Grab Effluent		
		2/month	Grab Effluent		
	30 30 1.0 10 Between 6.0	30 45 1.0 2.0	30 45 2/month 30 45 2/month 1.0 2.0 2/month 10 15 2/month Between 6.0 and 9.0 SU 2/month		

TABLE H-2-3. EFFLUENT SUMMARY, INDUSTRIAL WASTE TREATMENT PLANT, OUTFALL 003, NPDES NO. GA0004308, FORT STEWART, GEORGIA

DATE	BOD ₅ (mg/L)	TSS (mg/L)	PHENOL (mg/L)	O&G (mg/L)	pH (su)
Permit	30	30	1.0	10.0	6-9
Limits					
Jun-87	2	4	0.01	5 7.5	7.1
Jul-87	3	6	0.02	7.5	7.2
Aug-87	3	4	0.02	2.5	7.2
Sep-87	3	4 5 4 3 3	0.01	5 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	7.4
Oct-87	3	4	0.02	6	7.2
Nov-87	2	3	0.01	5	7.4
Dec-87	2	3	0.01	5	7.4
Jan-88	3	4	0.01	5	7.3
Feb-88	3	6	0.01	5	7.5
Mar-88	5	11	0.01	5	7
Apr-88	3	5	0.02	5	7.1
May-88	3	5	0.02	5	7.1
Jun-88	2 3 3 3 2 2 3 3 5 3 3 3 3 3 3 3 3 3 3 3	5 4	0.01	5	7.3
AVG	3	5	0.01	5	7
MAX	3 5	11	0.02	7.5	7.5

TABLE H-2-4. NPDES PERMIT SUMMARY, EVANS ARMY AIRFIELD, PACKAGE TREATMENT PLANT, OUTFALL 001, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Parameter	Discharge	Limitations	Monito	ring Requirem	nents
rarameter	(All unit	s mg/L unless ated otherwise.)	Frequency	Туре	Location
Flow (MGD)	0.035	0.035	Daily	Cont.	Influent or Effluent
BOD ₅	20	30	1/month	Composite	Effluent
Suspended Solids	30	45	1/month	Composite	Effluent
Fecal Coliform (#/100 mL)	200	400	1/month	Grab	Effluent
Ammonia Nitrogen	5.0	7.5	1/month	Composite	Effluen
рН	Between 6 SU at all	.0 and 9.0 times.	1/month	Grab	Effluen

SU: Standard Units Cont.: Continuous

TABLE H-2-5. EFFLUENT SUMMARY, EVANS ARMY AIRFIELD, PACKAGE TREATMENT PLANT, OUTFALL 001, NPDES NO. GA0004308, FORT STEWART, GEORGIA

DATE	FLOW (MGD)	BOD ₅ (mg/L)	TSS (mg/L)	FC (#/100 mL)	NH ₃ -N (mg/L)	pH (su)
Permit Limits	0.035	20	30	200	5.0	6-9
Jun-87	0.001	6	3	0	0.03	
7.972.55.W. 1-7V.5					0.03	6.9
Jul-87	0.0011	2	3	980	0.52	7.1
Aug-87	0.001056	2	5	0	0.03	7.3
Sep-87	0.001359	2	6	0	0.1	7.1
Oct-87	0.001171	3	5	0	0.03	7.4
Nov-87	0.001031		9	0	0.17	7.2
Dec-87	0.00523	4	7	0	0.02	7.4
Jan-88	0.0011	4	7	0	0.03	7.3
Feb-88	0.004185	8	6	0	0.04	7.3
Mar-88	0.00145	6	6	0	0.26	7.4
Apr-88	0.00252	4	6	0	0.03	7.3
May-88	0.002147	5	7	0	9.5	7.4
Jun-88	0.00756	6	3	0	0.03	6.9
AVG	0.0024	4	5.9	75	0.83	7.2
MAX	0.00756	8	9	980	9.5	7.4

TABLE H-2-7. NPDES PERMIT SUMMARY, TAC-X, PACKAGE TREATMENT PLANT, OUTFALL 002, NPDES NO. GA0004308, FORT STEWART, GEORGIA

	Discharge Limi		Monitoring Requirements				
	(All units mg/ unless stated Monthly		Frequency	Туре	Location		
Flow (MGD)	0.035	0.035	Daily	Cont.	Influent or Effluent		
BOD ₅	20	30	1/month	Composite	Effluent		
Suspended Solids	30	45	1/month	Composite	Effluent		
Fecal Coliform (#/100 mL)	200	400	1/month	Grab	Effluent		
Ammonia Nitroge	en 5.0	7.5	1/month	Composite	Effluent		
рН	Between 6 at all ti	.0 and 9.0 SU	1/month	Grab	Effluent		

SU: Standard Units Cont.: Continuous

TABLE H-2-7. EFFLUENT SUMMARY, TAC-X, PACKAGE TREATMENT PLANT, OUTFALL 002, NPDES NO. GA0004308, FORT STEWART, GEORGIA

Date	Flow (MGD)	BOD ₅ (mg/L)	TSS (mg/L)	FC (#/100	mL)	NH ₃ -N (mg/L)	pH (su)
Permit Limits	0.035	20	30	200		5.0	6-9
Jun-87	0.010	8	21	2000		2.9	7.1
Jul-87	0.010	11	19	158		9.6	7.3
Aug-87	0.006	11	21	0		0.03	7.0
Sep-87	0.009	10	18	0		22	7.2
Oct-87	0.008	10	16	0		0.16	7.2
Nov-87	0.009	15	26	0		0.03	7.2
Dec-87	0.008	15	19	12		6.5	7.1
Jan-88	0.009	18	19	11		3.0	7.1
Feb-88	0.012	20	16	10	ì	1.3	7.2
Mar-88	0.011	10	7	0		0.03	7.2
Apr-88	0.012	9	16	. 0	ì	10	7.1
May-88	0.009	15	25	0)	18	7.2
Jun-88	0.008	8	11	C)	0.03	6.8
AVG	0.0093	12	18	169)	6	7
MAX	0.0122	20	26	2000)	22	7.3

TABLE H-2-8. LAND APPLICATION PERMIT SUMMARY, WRIGHT ARMY AIRFIELD TREATMENT PLANT, LAS NO. GA03-834, FORT STEWART, GEORGIA

Parameter	Discharge Li	Monitoring Requirements			
	(All units munless state	ng/L unless ed otherwise.) Monthly	Frequency	Туре	Location
Flow	1,800 gpd	ns	ns	ns	Discharge to spray irrigation system.
BOD ₅	ns	50	ns	ns	Discharge to spray irrigation system.
Suspended Solids	ns	100	ns	ns	Discharge to spray irrigation system.

ns: Not Specified.

TABLE H-2-9. EFFLUENT SUMMARY, WRIGHT ARMY AIRFIELD, LAND APPLICATION SYSTEM, FORT STEWART, GEORGIA

DATE	BOD ₅ (mg/L)	TSS (mg/L
Jun-87	16	18
Jul-87	15	21
Aug-87	17	17
Sep-87	15	30
Oct-87	17	18
Nov-87	21	22
Dec-87	23	35
Jan-88	23	30
Feb-88	25	27
Mar-88	17	21
Apr-88	18	23
May-88	16	29
Jun-88	18	27
AVG	19	24
MAX	25	35

TABLE H-2-10. LAND APPLICATION PERMIT SUMMARY, CAMP OLIVER TREATMENT PLANT, LAS NO. GA03-624, FORT STEWART, GEORGIA

Parameter	Discharge Limitations (All units mg/L unless unless stated otherwise.) Daily Quarterly		Monitor Frequency	ing Re	quirements Location
Flow	0.070 MGD	ns	ns .	ns	Discharge to spray irrigation system.
BOD ₅	ns	50	ns	ns	Discharge to spray irrigation system.
Suspended Solids	ns	100	ns	ns	Discharge to spray irrigation system.
ns: Not Specified					o, occan.

APPENDIX C CHEMICAL DATA

- (a) A general plan that clearly identifies the exact location of the facilities, areas reserved for future expansion, access roads to the various units, and the point at which the access roads connect with existing road or street systems. It shall also show sufficient detail of the units, pipelines or any other features so as to make the proposed treatment process clearly and easily understood. The elevations of all units and water surfaces shall be shown.
- (b) Detail plans which show longitudinal and transverse sections sufficient to explain the construction of each treatment
- (c) Flow measuring devices at appropriate points in the plan. Sampling and recording devices may be required by the Division when deemed necessary.

(d) Such other information as the Division may require.

- (9) Approval of Plans and Specifications. Approval of the plans and specifications by the Division does not include or imply and proval of the structural electrical, on mechanical integrity of ther sewerage system, treatment facilities, units or equip-
- (10) Deviation from Approved Plans and Specifications. No deviations from approved plans and specifications shall be made during construction unless documentation showing proposed changes has been submitted to and approved by the Division.
- (11) Effective Date. This Paragraph shall become effective on June 30, 1974
- 391-3-6-.03 Water Use Classifications
- and Water Quality Standards.

 (1) Purpose: The establishment of water quality standards, (2) Water Quality Enhancement:
- (a) The purposes and intent of the State in establishing Water Quality Standards are to provide enhancement of water quality and prevention of pollution; to protect the public health or welfare in accordance with the public interest for drinking water supplies, conservation of fish, game and other beneficial aquatic life, and agricultural, industrial, recreational, and other beneficial uses.
- (b) Those waters in the State whose existing quality is better than the minimum levels established in standards on the date standards become effective will be maintained at high quality; with the State having the power to authorize new developments, when it has been affirmatively demonstrated to the State that a change is justifiable to provide necessary social or economic development; and provided further that the level of treatment required is the highest and best practicable under existing technology to protect existing beneficial water uses.
- (c) In applying these policies and requirements, the State of Georgia will

recognize and protect the interest of the Federal Government in interstate (including coastal and estuarine) waters. Toward this end the State will consult and cooperate with the Environmental Protection Agency on all matters affecting the Federal interest.

- (3) Definitions. All terms used in this Paragraph shall be interpreted in accordance with definitions as set forth in the Act and as otherwise herein defined:
- (a) "Reasonable and necessary uses" means drinking water supplies, conservation of fish, game and other aquatic life, agricultural, industrial, recreational, and other legitimate uses:

(b) "Shellfish" refers to clams, oysters, scallops, mussels, and other mollusks.

(c) "Intake temperature" is the natural or background temperature of a particular waterbody unaffected by any man-made discharge or thermal input.

(d) "Coastal waters!" are those littoral recreational waters on the ocean side of the Georgia coasta unitatinas langues 11.

(4) Water Use Classifications. Water use classifications for which the criteria of this Paragraph are applicable are as follows:

(a) Drinking Water Supplies

(b) Recreation

- (c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life
 - (d) Agricultural
 - (e) Industrial
- (f) Navigation (g) Wild River
- (h) Scenic River
- (i) Urban Stream
- (5) General Criteria for All Waters. The following, criteria, are, deemed, to be necessary and applicable to all waters of the State:
- (a) All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.
- (b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.
- (c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.
- (d) All waters shall be free from toxic. corrosive, acidic and caustic substances discharged from municipalities, industries or other sources in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life.

(e) Applicable State and Federal requirements and regulations for the discharge of radioactive substances shall be met at all times.

- (f) No man-made physical or other alteration of stream beds that may violate established water quality standards, or reduce the waste assimilative capacity of the streams, will be permitted without the expressed approval of the Environmental Protection Division.
- (6) Specific Criteria for Classified Water Usage. The following criteria are deemed necessary and shall be required for the specific water usage as shown:

(a) Drinking Water Supplies:

1. Those waters approved by the Environmental Protection Division and requiring only approved disinfection and meeting the requirements of the Federal Drinking Water Standards; or waters approved by the Environmental Protection Division for human consumption and food-processing or for any other: use, requiring water of a lower qualityou and se

(i) Bacteria: Fecal coliform not to exa ceed a geometric mean of 50 per 400 ml based on at least four samples takentavent 30-day period and not to exceed 200 per 100-ml in more than five percentage the samples in any 90-day period bodiem -di

(ii) Floating solids, settleable solids, sludge deposits or any taste, odos os colos producing substances: None-associated with any waste discharge.

(iii) Sewage, industrial or other wastes: None.

2. Those raw water supplies requiring approved treatment to meets the arequirements of the Environmental Protecte tion Division and the Federal Drinking Water Standards or which are approved by the Environmental Protection Distriction human consumption and food processing or for any other use requiring water of a lower quality:

(i) Bacteria: Fecal coliform not to exceed a geometric mean of 1,000 per 100 ml based on at least four samples taken over a 30-day period and not to exceed a maximum of 4,000 per 100 ml.

(ii) Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times for water supporting warm water species of fish.

(iii) pH: Within the range of 6.0-8.5.

- (iv) No material or substance in such concentration that, after treatment, would exceed the requirements of the Environmental Protection Division and the latest edition of Federal Drinking Water Standards
- (v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish

^{*}Applicable to Intrastate and Interstate Waters of Georgia

Division, there shall be no elevation or depression of natural stream temperature.

(b) Recreation:

- 1. General recreational activities such as water skiing, boating, and swimming, or for any other use requiring water of a lower quality. These criteria are not to be interpreted as condoning water contact sports in proximity to sewage or industrial waste discharges regardless of treatment requirements:
- (i) Bacteria: Fecal coliform not to exceed a geometric mean of:
 - (I) Coastal Waters 100 per 100 ml
- (II) All other recreational waters 200 per 100 ml
- (III) Should water quality and sanitary studies show natural fecal coliform levels exceed 200/100 ml (geometric mean) occasionally in high quality recreational waters, then the allowable geometric mean fecal coliform level shall not exceed 300 per 100 ml in lakes and reservoirs and 500 per 100 ml in free flowing fresh water
- I. The geometric mean will be used as the method of criteria expression. This technique will be applied to no less than four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours.
- (ii) Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times for waters supporting warm water species of fish.

(iii) pH: Within the range of 6.0-8.5.

- (iv) Toxic Wastes, Other Deleterious Materials: None in concentrations that would harm man, fish and game or other beneficial aquatic life.
- (v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.
- (c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life; or for any other use requiring water of a
- lower quality:

 1. Dissolved Oxygen: A daily average of 6.0 mg/l and no less than 5.0 mg/l at all times for waters designated as trout streams by the State Game and Fish Division. A daily average of 5.0 mg/l and no
- less than 4.0 mg/l at all times for waters supporting warm water species of fish. 2. pH: Within the range of 6.0-8.5.
- 3. Bacteria: Fecal coliform not to exceed a geometric mean of 1,000 per 100 ml based on at least four samples taken over a

30-day period and not to exceed a maximum of 4,000 per 100 ml.

- 4. Bacteria: (Applicable only to waters designated as approved shellfish harvesting waters by the appropriate State agencies). The requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program.
- 5. Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.
- Toxic Wastes, Other Deleterious Materials: None in concentrations that would harm man, fish and game or other beneficial aquatic life.

(d) Agricultural:

- For general agricultural uses such as stock watering and irrigating; or for any other use requiring water of a lower quality:
- (i) Bacteria: Fecal coliform not to exceed a geometric mean of 5,000 per 100 ml based on at least four samples taken over a 30-day period.
- (ii) Dissolved Oxygen: No less than 3.0 mg/l at any time.

(iii) pH: Within the range of 6.0-8.5.

- (iv) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 dgrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.
- (v) Toxic Substances, Other Deleterious Materials: None in concentrations that would interfere with or adversely affect uses for general agricultural purposes or would prevent fish survival.

(e) Industrial:

- For processing and cooling water with or without special treatment; or for any other use requiring water of a lower quality;
- (i) Dissolved Oxygen: No less than 3.0 mg/l at any time.
 - (ii) pH: Within the range of 6.0-8.5.
- (iii) Toxic Substances, Other Deleterious Materials: None in concentrations that would prevent fish survival or interfere with legitimate and beneficial industrial uses.
- (iv) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In

streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(f) Navigation:

1. To provide for commercial ship traffic and protection of seamen or crews:

 (i) Bacteria: Fecal coliform not to exceed a geometric mean of 5,000 per 100 ml based on at least four samples taken over a 30-day period.

(ii) Dissolved Oxygen: No less than 3.0

mg/l at any time.

(iii) pH: Within the range of 6.0 - 8.5.

- (iv) Toxic Substances, Other Deleterious Materials: None in concentrations that would damage vessels, prevent fish survival or otherwise interfere with commercial navigation.
- (v) Temperature: Not to exceed 90 degrees F. At no time is the temperature of the receiving waters to be increased more than 5 degrees F above intake temperature except that in estuarine waters the increase will not be more than 1.5 degrees F. In streams designated as trout or smallmouth bass waters by the State Game and Fish Division, there shall be no elevation or depression of natural stream temperatures.

(g) Wild River:

- 1. This classification will be applicable to any waters of the State when so designated by an authorized State or Federal Agency and will be effective simultaneously with that Agency's proper designation.
- For all waters designated as "Wild River," there shall be no alteration of natural water quality from any source.

(h) Scenic River:

- 1. This classification will be applicable to any waters of the State when so designated by an authorized State or Federal Agency and will be effective simultaneously with that Agency's proper designation.
- For all waters designated as "Scenic River," there shall be no alteration of natural water quality from any source.
 - (i) Urban Stream:
- 1. This classification is applicable to streams in highly developed urban areas:
- (i) All conditions specified under "General Criteria for All Waters" [391-3-6-03(5)] will apply, and in addition, the waters so classified are to be aesthetically compatible to adjacent areas.
- (ii) Bacteria: Fecal coliform not to exceed a geometric mean of 2,000 per 100 ml based on at least four samples taken over a 30-day period and not to exceed a maximum of 5,000 per 100 ml.
 - (iii) pH: Within the range of 6.0 8.5.
- (iv) Dissolved Oxygen: No less than 3.0 mg/l at any time.
- (7) Natural Water Quality: It is recognized that certain natural waters of the State may have a quality that will not be within

Water Quality Data--Ogeechee River at Eden

Torre				
Date Sampled	Nov 13	Feb 12	May 8	Aug 14
	1973	1974	1974	1974
· Jul				
Time sampled	1045	1130	0945	1415
Discharge	495	4930	1080	1820
pH (units)	7.3	7.0	6.8	6.4
Temperature (degree C)	5.0	10.0	21.0	26.0
Dissolved oxygen (mg/l)	13.1	10.0	5.9	6.8
Alkalinity as CaCO3 (mg/l)	28	7	24	10
Dissolved nitrate plus nitrate (mg/l)	. 02	. 02	.11	.05
Dissolved ammonia nitrogen				
(mg/1)	.02	. 02	.02	.02
7.2			-22	8 77 2
Total phosphorus (mg/1)	.02	.0	4 .	.04
Hardness; Ca Mg (mg/1)	26	12	24	18
Specific conductance				
(micromhos)	86	43	70	61
Color (platinum-cobalt				
units)	35	100	60	-
Turbidity (JTU)	3	11	5	-
Biochemical oxygen				N=
demand (mg/l)	.1	. 6		2 -
Fecal coliform (FC Broth)				
(MPN)	30	430	150	
Total organic carbon (mg/l)	3.0	16	6.	.0 21

Source FST DEH, 1977.

Water Quality Data--Ogeechee River at Claxton

Date Sampled	Nov 12 1973	Feb 12 1974	May 7 1974	Aug 13 1974	Sep 13 1974
Time Sampled	1315	1200	1030	1400	1400
Discharge (cfs)	106	2900	69	191	143
PH (units)	5.3	5.6	6.1	5.8	6.2
Temperature (deg C)	5.0	9.0	21.0	26.0	23.0
Dissolved oxygen (mg/1)	12.0	8.6	5.4	8.1	7.5
Alkalinity as CaCo3 (mg/l)	2	3	4	3	5
Dissolved nitrate plust					
nitrate (mg/1)	.02	.02	.08	.02	.04
Dissolved ammonia nitrogren	i				
(mg/1)	.02	.02	.04	.02	.04
Dissolved ammonia, NH4 (mg/1	.) -	-	.05	-	.05
Total phosphorus (mg/1)	.03	.02	.08	.06	.11
Hardness, Ca, Mg. (mg/1)	7	4	8	14	8
Specific conductance					
(micromhos)	38	32	37	44	43
Color (platinum-cobalt					
units)	100	100	120	120	100
Turbidity (JTU)	3	11	5	5	11
Biochemical oxygen					
demand (mg/1)	1.5	0.6	0.7	1.1	1.5
Fecal coliform (FC					
Broth) (MPN)	2300	1500	230		4300
Total organic carbon	14	18	15	24	18

Source: FST DFAE, 1977.

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TOTAL DIS. SOLIDS (MC/L)

TOTAL PHOSPHATE (MG 'P/L)

DISSOLVED OFFGEN (MC/L)

TEMPERATURE (C)

TABLE 1

WATER QUALITY FIGINEEPING SPECIAL STUDY NO. P4-849-76.
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

PERIOD 3

558

.24

4.50

28.0

268

. 14

27.5

4.20

122 -

-11

23.5

3.95

CONTINUOUS DATA

SAMPLE POINT 1

PAPAMETER	DAY 16	CAY 17	DAY 18	TAY 19
TIME	900	832	.820	825
C!:	6.4	6.6	6.5	6-1
CONFUCTIVITY (UMHO/CM)	2:30	269	295	98
EOUE (MC/L)	3.0	*****	******	*****
TOC (ME/L)	31.0	31.0	30.0	21.0
HH3-H (ME N/L)	- 31	.26	- 38	. 14
KJELEANL H (HE NYL)	1.20	1 - 30	1.30	.94
1105+103-11 (IL N/T)	.07	-08	-12	.0€
SUSPENDED SOLIDS (ME/L)	49.0	49.0	34.0	68.0
TOTAL SOLIES (MG/L)	268	277	362	190

219

.23

27.5

4.70

TABLE 2

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER AFMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

SAMPLE PO	INT	2	PERIOD 3		
PEPAMETEP	DAY	16	EAY 17	EAY 18	DAY 19
TIME		900	832	830	830
PH		5.9	6.4	6.5	5.Ç
COMETICITIVITY (UMHOVICA)		80	98	171	39
	- :	2.0	*****	*****	*****
100 (30/2)	÷ .	32.0	30.0	31-0	21.2
NEG-II CIC MVL)		. 35	- 31	. 49	.14
KJELEAPL N (MC N/L)		.62	1 - 30	1.70	. 34
1102+1103-N (CIC N/L)		.05	. @ 6	.08	. 24
SUSPENDED SOLIDS (MG/L)		22.6	24.0	42.3	73.0
TOTAL SOLIES (MEVL)		153	176	539	150
TOTAL DIS. SOLIDS (MC/L)		131	152	197	77
TOTAL PHOSPHATE (ME P/L)		.16	.19	.26	.12
CISSOLUED OXYGEN (NG/L)		5.90	6.10	5.80	5.60
TEMPERATURE (C)		26.5	28.0	27.2	23.6

TABLE 3

WATER QUALITY ENGINEEPING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CAMPI	F	THICH	2	PERIOD :
- 11:11 -	-		-	

PAPAMETER	CAY	1 €	CAY 17	DAY	18	LUX	19
TIME .		900	830		835		340
P!!		4.9	5.0	1	5.0		5.1
CONDUCTIVITY (UMHO/CM)	112-7	79	79		85		79
BODS (MC/L)		1.0	*****	***	***	***	***
TOC (MG/L)		39.0	38.0		36.0		32.8
NH3-M (ME N/L)		. 20	.26		.18	. 4	.19
KUFLEAHL N (NC N/L)		1.00	1.20		1.00		1.10
1105+N03-N (MC NVT)	<	. 64	< .04	<	. @ 4	<	. 7.4
SUSPENCES SOLIES (HG/L)		9.0	15.0		11.2		12.0
TOTAL SOLIES (MC/L)		130	138		153		129
TOTAL DIS. SOLIDS (MC/L)		121	123		142		11€
TOTAL PHOSPHATE (.10 P/L)		.06	.06	<	. C.4	<	. C 4:
DISSULVED DXYCEN (MC/L)		4.20	5.13		4.05		4.50
TEMPERATUPE (C)		27.3	27.0		25.5		24.0

TABLE 4

VATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTEF AFMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPL: POINT 4 PERIOR 3

PAFAMETER	FAY 9	DAY 10	DAY 11	DAY 13	Lb. 13
TIME	1000	1000	925	1236	1010
PH.	6.4	6.6	6.5	*****	*****
CONFUCTIVITY (UMHO/CM)	820	1820	1580	******	*****
BOTS (IC/L)	1.0	2.0	2.0	*****	*****
TOC (MG/L)	30.0	28.0	28.0	*****	*****
NH3-N (MC N/L)	- 11	.12	- 11	*****	*****
MUELDAHL N (MG H/L)	-90	-80	. 75	*****	*****
1105+1103-11 (MC NVT)	.05	.05	.04	*****	*****
SUSPENDED SOLIDS (MG/L)	85.0	53.0	58.2	******	*****
TOTAL SOLIES (MC/L)	572	1267	10€3	*****	*****
TOTAL DIÉ. SOLIDS (MC/L)	487	1014	1005	*****	*****
TOTAL PHOSPHATE (MC P/L)	-16	- 10	.16	*****	******
DISSOLVED OXYGEN (MG/L)	3.80	3-40	3.20	3.40	4.12
TEMPFFATUPE (C)	26.0	26.0	27.0	27.5	28.€
	DAY 14	DAY 15	PAY 16	DAY 17	DAY 18
TIME	1215	******	1140	1035	1346
Pii	*****	*****	6.5	6.4	6.4
CONFLICTIVITY (TWHONCH)	*****	*****	2166	1410	1132
BODS (46/L)	******	*****	1.3	*****	*****
TOC (MC/L)	******	*****	28 - 2	29.0	28.9
NH3-N (MC N/L)	*****	*****	- 30	.20	.15
KUELFAHL H (MG H/L)	*****	*****	1.10	1 - 10	1.02
335+803-N (WC M/L)	******	*****	. 94	.05	. 95
SUSPENDED SOLIDS (MG/L)	*****	****	40.0	24.0	27.0
TOTAL SOLIES (MG/L)	*****	*****	1416	959	650
TOTAL DIS. SOLIES (MG/L)	*****	****	137€	935	822
TOTAL DUD COUNTY (MC DVI)			ac	1.2	1.1

.12

3.70

30.2

· 1 1

3.50

30.0

.08

2.90

30.2

3.80

28.5

3.60

29.0

TOTAL PHOSPHATE (MC P/L) ******

CISSOL"ED DXYGEN (MC/L)

TEMPFRATURE (C)

	DAY	19
TIME		920
PH		6.1
CONDUCTIVITY (UMHO/CM)		315
TOC (MC/L)		30.0
NH3-N (MG N/L)		.16
KUELDAHL N (MG N/L)		1 . 30
1102+N03-N (MC N/L)		.06
SUSPENDED SOLIDS (ME/L)	1	59.0
TOTAL SOLIES (MC/L)		333
TOTAL DIS. SOLIDS (MG/L)		274
TOTAL PHOSPHATE (HG P/L)		. 20
DISSOLVED DXYGEN (MC/L)		3.70
TEMPERATURE (C)		27.0

TABLE 5

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-649-76
HUNTER ARMY AIRFIELD, SAVANNA, GEOPGIA
6-21 JULY 1976

SAMPLE POINT 4	PERI	OD	4
----------------	------	----	---

PARALIETEP	DAY 9
TIME	1400
PK	5.8
CONFUCTIVITY (UMHO/CII)	180
BOTS CHOZED	2.0
TOC CICATO	35.0
MH2-W (MC M/L)	.08
MUTELPAHL TO (MC NVL)	.90
MOS+NOS-N (MG NVL)	< .94
SUSPENDED SOLIDS (MG/L)	68.0
TOTAL SOLIDS (ME/L)	227
TOTAL DIS. SOLIES CICAL)	159
TOTAL PHOSPHATE (HC P/L)	. 14
DISSOLVED OXYGEN (MC/L)	5.09
TEMPERATURE (C)	26.0

TABLE 6

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, CEORGIA
6-21 JULY 1976

C (2.11 D)	See .		-	DEPILI	
1	-	POINT	_	PEPIOD	-

PADAMETER	PAY	16
TIME		925
PH		6 - 7
CONDUCTIVITY (UNHO/CM)		130
BODS (MC/L)		1.0
TOC (ME/L)		10.0
NH3-11 (MG N/L)		. 53
KJELDAHL N (MG N/L)		.83
NOS+NO3-11 (MC NNT)		-10
SUSPENDED SOLIDS (MG/L)		22.0
TOTAL SOLIDS (MG/L)		97
TOTAL DIS. SOLIDS (MG/L)		75
TOTAL PHOSPHATE (MC P/L)	<	.04
DISSOLVED OXYCEN (MG/L)		5.30
TEMPERATURE (C)		25.0

TABLE 7.

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

SAMPLE P	OINT 6	PERIOD 3			
PARAMETER	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
TIME PH CONDUCTIVITY (UMHO/CM) BODS (MG/L) TOC (MG/L) NH3-N (MG N/L) KJELDAHL N (MG N/L) NO2+NO3-N (MG N/L) SUSPENDED SOLIDS (MG/L) TOTAL SOLIDS (MG/L) TOTAL DIS. SOLIDS (MG/L) TOTAL PHOSPHATE (MG P/L) CREASE AND OIL (MG/L) DISSOLVED OXYGEN (MG/L) TEMPERATURE (C)	930 6.9 140 1.0 8.8 .30 .30 .04 19.0 139 120 .08 *******	830 6.8 131 1.0 < 9.0 16 .46 < .04 < 9.0 127 118 .13 *******	****** 6.8 155 1.0 6.0 .17 .32 .04 10.0 104 94 .13	830 6.8 170 3.0 7.0 .18 .41 < .04 14.0 139 125 .15 < 1.0	830 6.7 118 3.0 11.0 .12 .40 .07 15.0 112 .97 .17
		DAY 16			23.0
TIME PH CONDUCTIVITY (UMDO/CM) SDES (MC/L) SDES (MC/L) (MC/L) NJC (MC/L) KJELDAHL M (MC/W/L) KJELDAHL M (MC/W/L) KJELDAHL M (MC/W/L) COMPSENSE SOLITS (MC/L) TOTAL SDEITS (MC/L) TOTAL PHOSPHATE (MC/L) DISSOLVED OXYCEN (MC/L) TEMPERATURE (C)	830 6.7 138 1.0 6.0 .24 .29 .04 5.0 14!	905 6.9 142 1.0 6.0 .22 .35 < .04 < 9.5 95	915 6.6 151 ****** 9.0 .26 .36	315 6.9 150 ****** 7.2 .33 .42 .C4 7.2 152 145 .14	840 6.8 111 ******* 16.3 .35 .95 .05 .05 .25 .25 .25 .25 .25 .25

TABLE 8

HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA 6-21 JULY 1976

	SAMPLE PO	INT 8 INI	PERIOD 3			
PAPAMETEP		DAY 9	DAY 10	DAY 11	DAY 12	DAY 13
T	i	830	1200	842	1300	933
TIME		6.8	6.8	6.9	6.9	7.0
PH CONDUCTIVITY	(TAHO (Chi)	-	169	183	205	205
EODS (MC/L)	(Clinio) C.i.	1.0	1.9	< 1.0	2.0	2.0
TOC (MC/L)		19.0		14.0	12.0	12.0
MH3-M (MG MYL		. 38	. 43	. 37	. 44	- 58
KJELDAHL N CO		.75	1.10		.89	.85
302+N03-N (110		.37	.23	- 38	. 45	- 33
SUSPENDED SOL	105 (116/L)		17.0	18.0	15.0	12.0
TOTAL SOLIDS	(16/1.)	225	166	194	190	168
TOTAL DIS. SO	TIPS (MG/L)		149			156
TO TAL PHO SPHO	TE (ME P/L)	. 32	-16	.27		
DISSOLVED OX	CEN (MG/L)	4.20	4.80	4.50		
TEMPERATURE (*****	26.0	25.0	26.5	26.5
		DAY 15	DAY 16	DAY 17	DAY 18	DAY 19
TIME		900	930	1000	925	905
PH		6.2	7.0		7.0	6.5
CONDUCTIVITY	(LETITO/CM)	198	200	173	194	195
FORS (SIE/L)		1.9	2.0			*****
TOC (MG/L)		12.0	11.0		9.0	14.9
MI:3-M CHC NVI	L)	1.20	1 - 70		- 48	.23
KJELEAHL N (MG N/L)	1.20	1.70		.77	.89
NO 2+1/10 3-N (11		. 43	- 48			. 20
SUSPENDED SO	LIDS (MC/L)	10.0	14.0		9.0	38.0
TOTAL SOLIES	CHE/L)	162	145		169	120
TOTAL DIS. S	OLICS (MG/L)	152	131			82
TOTAL PHOSPY	ATE (MG P/L)	- 31	• 38			
DISSOLVED OX	YGEI (MG/L)	5.20		5.10		
TEMPERATURE		26.€	26.5	28.3	26.5	25.0

TABLE 9

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-849-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 8 PERIOD 4

PARAMETER	LOY o
71:	€.6
CHONCHIMID YTIVITOURICE	200
PODS (MG/L)	4.6
TOO (!C/L)	20.0
ווויפ-יו (יור מאר)	• 38
HUFLEAML M (MC NVL)	.93
MOS+NOS-N (MC NAT)	• 30
CHEDENCED SOLIDS (MG/L)	36.0
TOTAL SOLIDS (MG/L)	208
TOTAL DIS. SOLIDS (MG/L)	172
TOTAL PHOSPHATE (MC P/L)	.17

TABLE 10

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

SAMPLE	POINT	PERIOD	3
--------	-------	--------	---

PARAMETER	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18
TIME	1015	900	1000	1000	940
PH	7.0	6.7	7.0	6.8	7 - 1
CONDUCTIVITY (UMHO/CM)	210	405	410	365	290
BODS (MG/L)	4.0	1.0	2.0	*****	*****
TOC (MG/L)	12.0	15.0	15.0	13.0	11.0
NH3-N (MG N/L)	. 44	.23	- 39	.19	- 39
KJELDAHL N (MC N/L)	. 79	1.00	1.10	1.00	.85
NO 2+NO 3-N (MG N/L)	. 41	. 44	. 73	. 67	• 55
SUSPENDED SOLIDS (MG/L)	24.0	23.0	20.0	28.0	14.0
TOTAL SOLIDS (MG/L)	182	302	330	278	253
TOTAL DIS. SOLIDS (MG/L)	158	279	310	250	239
TOTAL PHOSPHATE (MG P/L)	• 33	- 30	- 36	- 33	.33
DISSOLVED OXYGEN (MG/L)	3.90	4.70	4-10	4.80	4-10
TEMPERATURE (C)	28.0	26.0	28.5	28.0	28.5

TIME	920
PI	6.5
CUDACHED ALLITEDATED	122
TG C (:16/L)	13.9
11113-11 (115 11/L)	.23
TUFLEARL N (NC M/L)	. 7 :
2120 +1 20-1 (HC H/L)	.22
SUSPENDING SOLIDS (MOVE)	80.0
TOTAL SOLIES (MC/L)	1/:7
TOTAL PIS. SOLIES CHOZE)	113
TOTAL BUDSPLATE (10 PZL)	
DISSOLVED OXYGEN (HC/L)	3.26
TIMPEPATURE (C)	25.0

TABLE 11

WATER QUALITY ENCINEEDING SPECIAL STUDY NO. 24-049-76
LUNTED APMY AIRFIELD, SAVANNA, GEODGIA
6-21 JULY 1976

CONTINUOUS FATA

SHAPLE POINT 10 PERIOD 3

PAPA: LTPP	DAY 14	DAY 15	DAY IE	DAY 17	DAY 13
TIME	1020	966	1000	1009	94
PH	6.7	6.7	6.9	6.8	7.
CONDUCTIVITY (UMHO/CM)	913	529	790	482	42
EODS (MG/L)	2.0	2.6	3.0	*****	*****
TOC (ME/L)	31.0	17.2	29.0	16.0	12.
MH3-N (MG N/L)	.22	• 35	. 37	. 44	• 2
KJELDAHL NACHE N/L)	. 75	1.10	1.30	1.20	1 - 1
NO 2+NO 3-N (MG N/L)	11	- 28	. 36	- 49	. 1
SUSPENDED SOLIDS (MG/L)	55.0	36.0	42.0	41.0	23.
TOTAL SOLIDS (MG/L)	585	376	566	359	35
TOTAL DIS. SOLIDS (MG/L)	530	340	524	318	32
TOTAL PHOSPHATE (MG P/L)	- 20	.28	• 32	. 28	• 3
DISSOLVED OXYGEN (MG/L)	4.80	4.90	4.90	4.66	6-1
TEIPERATURE (C)	28.5	27.0	29.0	28.0	30.

DAY 19

TIME	925
PH	6.5
CONDUCTIVITY (LAHONCM)	155
TOC (::C/L)	14.0
MM3-H (MC M/L)	. 28
KUELDAML II (MC NVL)	1.00
NO2+NO3-N (MC M/L)	.22
SUSPENDED SOLIDS (MG/L)	18.0
TOTAL SOLIDS (MG/L)	158
TOTAL DIS. SOLIES (ME/L)	148
TOTAL PHOSPHATE (MG P/L)	.27
DISSOLVED OXYGE! (MG/L)	3.40
TEMPERATURE (C)	25.0

0.8S

TABLE 12

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-849-76 FUNTER APMY AIRFIELD, SAVANNA, GEORGIA 6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 11 PERIOD 3

PARAMETIC	DAY 9	DAY 10	DF" 11	DAY 16	DAY 17
TIME	945	945	915	1130	1030
211	6.4	6.5	6.5	6.5	6.5
CONCRETE YTT TOTAL CONTROL	910	1750	1720	2125	1305
EOF5 (O/L)	1.0	2.0	1.0	2.0	*****
TOC (MG/L)	30.0	29.0	28.0	26.3	30.0
UH3-N CMG N/L)	.97	. 39		. 21	- 18
KUELDAML M (MC NVL)		.90	1.00	1.20	1.20
NO 2+110 3-10 (HG N/L)	.04	.05	.04	.04	-05
SUSPENDED SOLIDS (MG/L)		52.0	58.0	43.6	29.0
TOTAL SOLIES (MG/L)	620	1017	1140	1450	868
TOTAL DIS. SOLIDS (MC/L)	548		1282	1407	839
TOTAL PHOSPHATE (MG P/L)	-08	- 69	.14	- 11	.09
DISSOLVED OXYCEN (MG/L)					3.70
TEMPERATURE (C)	26.0	26.0			30.0
	DAY 18	DAY 19			
	DA. 10				
T I ! 1 '	1030	945			
bä	6.5	6.4			
COMPLICTIVITY (UNHO/CM)	1205	400			
TOC (MG/L)	28.0	26.0			
N!:3-:1 (!!C !!/L)	1.10	.26		*	
KUELDAHL 1 (MG N/L)	1.13	1 - 10			
NOS+NO3-11 (NE N/L)	.05	.13			
SUSPENDED SOLIES (MC/L)		32.9			
TOTAL SOLIES (MC/L)	931	341			
TOTAL DIS. SOLIDS (MC/L)	898	309			
TOTAL PHOSPHATE (MC P/L)	• 98	• 1 5			
DISSOLVED OXYGET (MC/L)		3.60			
TEMPERATURE (C)	30.0	27.0			

TABLE 13

TOTTE OUVLITY ENCINÉEPING SPECIAL STUDY NO. 04-840-76
TUDTEP ARMY AIRFIELL, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS PATA

SAMPLE POINT 11 PERIOD 4

PARAMETEP -	DAY 9
TIME	1400
P!!	6.5
CONTROLLINITY (THEO/CH)	430
FORE (ME/L)	2.0
TOC (MC/L)	24.0
HIGHT CHO NATA	. 24
KUTELFAME II CHC MAE)	.95
MOS+NO3-4 (MC UNT)	. 37
SUSPENDED SOLIDS CHOZE)	€7.2
TOTAL SOLIDS (MC/L)	371
TOTAL DIS. SOLIDS (MG/L)	364
TOTAL PHOSPHATE (MG P/L)	.28
DISSOLVED OXYCEN (MENL)	1.92
TEMPERATURE (C)	27.5

Water Quality Sp Study No. (0496-77, 6-23 Jul 76

TABLE 14

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76 HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA 6-21 JULY 1976

CONTINUOUS DATA.

SAMPLE PO	INT 12	PERIOD 3	1	*	
PARAMETER	DAY 9	DAY 10	DAY 11	DAY 16	DAY 17
TIME	935	935	905	1120	1000
PH	6.5	6.6	6.5		6.5
CONDUCTIVITY (UMHO/CM)	2500	3800	3400		2750
70.05 (MG/L)	1.0	2.0	1.0		*****
TOC (MG/L)	30.0	26.0	26.0	24.0	26.6
N. (11C 11/1)	.08	.09	- 1 1	- 11	. 22
MAS-A (HE HAL)	.90	- 75	.85	1-10	.92
NO 2+NO 3-N (MG N/L)	.04	.05	. 34	.04	.05
SUSPENDED SOLIES (MG/L)		49.0	46.0	35.0	33.0
TOTAL SOLIDS (MG/L)		2235	2137	2399	1832
TOTAL FIS. SOLIDS (MC/L)			2091	2364	1799
TOTAL PROSPHATE (MG P/L)		.09	- 14	.05	.10
DISSOLVED OXYCEN (MG/L)		3.60	3.20	2.80	3.50
TEMPERATURE (C)	26.0	27.0			
	DAY 18	DAY 19			
TIJE	1025	910			
Du	6.6	6 - 4			
CONFUCTIVITY (LMHO/CM)	2890	1150			
TOC (MG/L)	23.0	27.0			
MI/3-1 (MG M/L)	- 50	- 28			
EJELCAEL M (MC M/L)	1.10	1.20			
NO2+1103-11 (MG N/L)	. 04				
SUSPENCED SOLIDS (MG/L)	33.2				
TOTAL SOLIES (MC/L)	1878	793			
TOTAL DIS. SOLIES (MG/L)		758			
TOTAL PROSPURTE (MC P/L)	. 10	. 12			
DISSOLVED UNYCET (MOVL)		3.80			
TEMPERATURE (C)	30.0	28.5			

Water Quality Sp Study No. 24-0496-77, 6-23 Jul 76

TABLE 15

WATER QUALITY ENGINEERING SPECIAL STUDY NO. 24-049-76
HUNTER ARMY AIRFIELD, SAVANNA, GEORGIA
6-21 JULY 1976

CONTINUOUS DATA

SAMPLE POINT 12 PERIOD 4

PAPAMETER	DAY 9
TIME	1400
PH	6.2
CONDUCTIVITY (UMHO/CM)	390
BODS (MC/L)	2.0
TOC (ME/L)	34.0
NH3-N (MG N/L)	- 10
KJELDAHL N (MG.N/L)	-85
NO2+NO3-N (MG N/L)	.04
SUSPENDED SOLIDS (MG/L)	63.0
TOTAL SOLIDS (MG/L)	335
TOTAL DIS. SOLIDS (MG/L)	272
TOTAL PHOSPHATE (MG P/L)	< .04
DISSOLVED OXYGEN (MG/L)	6.00
TEMPERATURE (C)	27.0

PESTERS OF ANALYSES OF FORT STEWART WATER SAMPLES FOR NIPOWR MOL'S

HSE-MS
SUBJECT: Addendum to Potable/Recreational Water Quality
Engineering Survey No. 31-62-0178-81, 24th Infantry
Division and Fort Stewart, Fort Stewart, GA,
17-26 November 1980

a tody	Samole Type	Arsenic ma/L:	Barium mg/L	Cadmium mg/L	Chromium mg/L	Lead Ing/L	Mercury ing/L	ì
Well No. 1	raw	ΩN	ON	900.0	GN	0.007	ON	
Well No. 4	raw	ON	QN	0.003	GN	QN	ON	
Main Dist	treated	QN	ON	0.007	ON	QN	QN	
TAC-X	treated	Q.V	QN	0.009	QN	ON	QN	
Camp Oliver	Yaw	QN	QN	0.010	R	ON	QN	
Camp Oliver	treated	QN	QN	0.010	QN	QN	ON	
Wright Field	treated	QN	QN	0.008	Q	QN	ON	
Evans Field	treated	QV.	QN	0.008	QN	QN	ON	
Taylor Creek	treated	QN	QN	0.007	ON	ON	QN	
Detection Limit		0.01	0.3	0.005	0.025	0.005	0.0002	
NPDWR MCL		0.05	1.	0.010	0.05	0.05	0.002	
								1

rigrograms per diter (ug/L)

Vicecuries per diter (pCi/L)

Vicecuries per diter (pCi/L)

Vicecuries per diter (pCi/L) nitrate nitrite reported as nitrogen (NO₃/NO₂as N) ".: ": cutected (ND)

Source: USAEHA, 1981a.

In ULCHAM CHOUNT
THEODORE W. DOLZINE
Cor, WSC
Chief, Environmental Chemistry Division

Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Sample	Sample Type	Heptachlor #9/L	Heptepoxide Hg/L	Cis-chlordane "g/L	Trans chlordane	Malathion µg/L	Chlorpryitos
Well No. 1	raw	ON	0.53	QN	ON	QN	Q
Well No. 4	raw		1	1	ĸ	t	,
Hain Dist	treated	QN	QN	QN	QN	ON	QV
TAC-X	treated	QN	ON	QN	QV	ND	CV.
Camp Oliver	raw	QN	QN	QN	QN	QN	ON
Camp Ollver	treated	QN	QN	QN	ON	QN	QN
Wright Field	treated	ON	QN	ON	QN	ON	QN
Evans Field	treated	QN	QN	ON	QN	Q	ON
Taylor Creek	treated	ON	QN	ON	QN	QV	ON
Detection Limit		90.0	0.16	0.16	0.16	1.60	0.24

Jon William Chinally
THEODORE W. DOLZINE
CPT, MSC
Chief, Environmental Chemistry Division

F-25

M dat. idenoum to Pot. ... thoual Make of ingineering Survey No. 31 52-01/2 81, ... in one division and Fort Stewart, Fort Stewart, CA, 17-26 November 1950

Sample	Sample Type	HCB µg/L	BHC µg/L	000 ng/L	00E µg/L	DUT µg/L	Oxychlordane ug/L	Mirex µg/L	Aldrin µg/L	Chlordane ug/L	Dieldrin v g/i
well No. 1	raw	QN	Q.	1.41	9	9	ON	QN	Q	ON	QN
rell No. 2	raw	ī	1	1	£	ı	3	,		Ĭ.	.,
Yain Dist	treated	ON	ON	ON	ON	Q	QN	N	N	QN	QN
AC-X	treated	QN	Q	NO	ND	N	QN	ND	QN	9	ON .
Camp Oliver	raw	Q	ND	Q	QN	ND	QN	ND	QN	CN	ON
Camp Oliver	treated	ND	ON	Q	Q	8	QN	QN	N	QN	QN .
wright Field	treated	ON	QN	Q	8	ON	CN	N	N	ON	CN ,
Evans Field	treated	N	QN	9	9	9	ON	Q	Q	O.V	QN
Taylor Creek	treated	QN	ND	N	9	9	ON	Q	QN	QN	ON
Detection Limit		0.80	0.20	0.40	0.40	0.60	0.16	0.04	0.16	1.20	0.24
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. W. Wann Cheard
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CPT, MSC
Chief, Environmental Chemistry Division

SUBJECT: Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Samo e Location	Sample Type	10 3/NO as N	Selenium mg/L	Silver mg/L	Fluoride mg/L	Endrin µ9/L4	Lindane µg/L
Well No. 1	raw	90.0	Ñ	QN	0.55	1.27	0.57
Well No. 4	raw	0.03	ON	QN	0.54	•	ï
Main Dist	treated	0.15	QN	QN	1.1	ON	ON
TAC-X	treated	0.16	ON	ON	0.37	ON	ON
Camp Oliver	raw	90.0	QN	QN	0.34	ON	ON
Camp Oliver	treated	90.0	QN	ON	0.43	ON	QN
Wright Field	treated	0.05	QN	QN	0.83	ON	ND
Evans Field	treated	0.03	CN	QN .	0.40	ON	QN
Taylor Creek	treated	0.22	QN	QN	0.59	ON	QN
Detection Limit		0.04	0.005	0.025	0.1	0.04	0.08
NPDWR MCL		10	0.01	0.05	1.6 6	0.2	4

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:See footnote on pg 1. ·See footnote on pg 1. ⁶ See footnote on pg 1.

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SUBJECT:

Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

Samp'e	Sample	Tethoxych or #9/-	Toxaphene g/L	2,4-0 119/L	Silvex ug/L	Tota! Trihalomethanes µg/L	Ì
Well No. 1	700	, CN	QN	GN	QN	1.5	
Well No. 4	NBY	r,	Ē	T.	1	0.2	
Main Dist	treated	QN	GN	QN	QN .	2.2	
TAC-X	treated	ON	QN	QN	QN	2.3	
Camp Oliver	NBN	QN	GN	QN	ON	0.1	
Camp Oliver	treated	ON	QN	QN	QN	14.6	
Wright Field	treated	QN	GN	QN	QN	8.1	
Evans Field	treated	ON	QN	QN	QN	7.6	
STaylor Creek	treated	QN	GN	QN	QN	32.4	
Detection Limit		1.60	1.60	3.80	0.5	0.50	
NPDWR MCL		100.	5.	100.	10.	100.	

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CPT, MSC
Chief, Environmental Chemistry Division

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· HSE-MS

SUBJECT:

31 July 1981 Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA, 17-26 November 1980

1,0001.00	ryse	9Ci/LS	pCi/L	pCi/L	Strontlum pCi/L	
Mell %o. 1	raw	<1.0	2.6 ± 1.2	<410		
Well No. 4	raw	1.2 0.8	3.2 ± 0.9	<410		
Wain Dist	treated	<1.0	2.5 ± 0.9	<410	ī	
TAC-X	treated	1.4 0.9	10.8 ± 1.4	<410	9.0>	
Camp Oliver	raw	<1.0	3.9 ± 1.0	<410	Î	
Camp Oliver	treated	<1.0	4.2±1.1	<410		
Wright Field	treated	. <1.0	7.2 ± 1.3	<410		
Evans Field	treated	<1.0	7.2 ± 1.2	<410	,	
Taylor Creek	treated	<1.0	3.6±1.0	<410	,	
Detection Limit					,	
NIPOWR MCL		15	20	20000	8	
⁵ See footnote on	on pg 1.					
			CO William	MOUST CHOOLD	<u>, </u>	
			CPT, MSC Chief, Envi	ronmental Ch	CPT, MSC Chief, Environmental Chemistry Division	

F-29

-1

SUBJECT:

RESULTS OF ANALYSES OF FORT STEWART WATER SAMPLES FOR NSDWR MCL'S

Addendum to Potable/Recreational Water Quality Engineering Survey No. 31-62-0178-81, 24th Infantry Division and Fort Stewart, Fort Stewart, GA,

17-26 November 1980

Sample .ocation	Samp'o Type	Chloride>	Copper mg/L	Iron mg/L	Manganese mg/L	PH S.U.1	Sulfate mg/L	Total Dissolved Solids (mg/L)	Zinc mg/L
Well No. 1	raw	5.0	0.179	ON	QN	8.1	8.3	179	0.000
Well No. 4	raw	5.0	ON	S	ON	8.1	8.9	173	NO
Main Dist	treated	7.4	QN	QN	ON	7.9	8.1	173	0.540
TAC-X	treated	6.9	N	ON	QN	7.9	7.2	199	0.038
Camp Oliver	raw	6.9	0.030	QN	QN	7.9	4.8	189	Q.
Camp Oliver	treated		0.152	0.39	QN	7.9	4.4	509	1.42
Wright Field	treated	21	ON	0.11	QN	8.2	4.4	224	0.190
Evans Field	treated	7.4	ON	ND	QN	8.1	5.6	202	0.113
Taylor Creek	treated	11	9	ND	QN	8.2	4.4	186	0.470
Detection Limit		0.50	0.025	0.10	0.030		0.5	1	0.015
NPDWR MCL	ų.	250	-1	0.3	0.05	6.5-8.5	250	200	2
	The state of the s								

Standard Units (S.U.

THEODORE W. DOLZINE CPT, MSC Chief, Environmental Chemistry Division

RESULTS OF FORT STEWART WATER SAMPLES FOR MISCELLANEOUS INORGANICS AND PESTICIDES

SUBJECT:

_ 3	17-	-26 1	on ar Noven	id Fo	1980)	art,	rort	. 316	ewart
Magnesium mg/L	8.6	9.3	8.9	0.9	7.3	6.9	11.7	8.7	8.3	0.5
Sod ium	16.5	18.4	16.4	26.3	14.2	14.0	20.6	16.9	20.7	1.0
Calcium × mg/L	18.8	21.0	26.7	28.0	18.7	22.7	28.0	28.7	28.6	1.0
ty 3	P.S.			0.0	8					
Total Alkalini (as CaCO ₃) mg,	107	107	103	103	108	107	151	108	116	٠
Hardness (as CaCO ₃) mg/L ²	82	06	105	94	64	87	118	107	106	1
Conductivity u mhos/cm 1	213	212	216	227	229	231	306	221	259	ı
Sample Type	Yaw	raw	treated	treated	MPJ	treated	treated	treated	treated	
Sample Location	Well No. 1	Well No. 4	Main Dist	TAC-X	Camp Oliver	Camp Oliver	Wright Field	Evans Field	Taylor Creek	Detection Limit

Addenuum to rotable/kecreational water quality

Division and Fort Stewart, Fort Stewart, GA,

Engineering Survey No. 31-62-0178-81, 24th Infantry

microminos per centimeter (umbos/cm) rardness reported as calcium carbonate (as $CaCO_3$) and $CacO_3$) and $CacO_3$

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THEODORE W. DOLZINE CPT, MSC Chief, Environmental Chemistry Division

U.S Army Drinking Water Surveillance Program Data--Fort Stewart

312834 FT. STEWART, CA.

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313834 FT. STEWART, GA.

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313834 FT. STEWART, GA.

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APP. CSADESP HAAF

U.S. Army Drinking Water Surveillance Program--Hunter Army Airfield

313424 HUNTER AAF, GA

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Table F-1. Preliminary Ground Water Quality Data at FST

Parameter	Bori July 17	ng l July 21	Boring 2 July 16	Boring 3 July 16	Bori July 17	ng 4 July 21	Boring 6 July 20	Boring 8 July 20
pH (pH units)	5.3	4.8	5.4	5.1				
COD (mg/1)			5.1	5.1	5.3	5.4	5.3	6.1
Nitrate Nitrogen (as N) (mg/1)			0.13		44.9			
Total Phosphate (as P) (mg/1)*		0.5	<0.01	0.04	0.04	<0.01	0.015	0.05
Fecal Coliforms (organisms/100 ml)					0			0.05

^{*} Each sample was passed through a 0.45-micron (u) filter prior to preservation and analysis.

Source: USAEHA, 1975b.

Table F-2. Preliminary Ground Water Quality Data at HAA

Parameter	Boring CS-1 July 18, 1975	Boring CS-3 July 18, 1975	Boring CS-5 July 21, 1975
pH (pH units)	6.6	6.3	5.2
COD (mg/1)	18.8		
Nitrate Nitrogen (as N) (mg/l)	0.22		
Total Phosphate (as P) (mg/l)*	0.04	0.04	0.06
Fecal Coliforms (organisms/100 ml)	0	0	0
Total Coliforms (organisms/100 ml)	30		

^{*} Each sample was passed through a 0.45-u filter prior to preservation and analysis.

Source: USAEHA, 1975c.

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Table F-3. Historical Data for Well 1 at FST

Parameter	1941	1959
Silica (mg/l)	36.0	35.0
Iron (mg/l)	0.02	0.04
Calcium (mg/l)	19.0	20.0
Magnesium (mg/l)	9.4	8.5
Sodium (mg/l)	16.0	16.0
Potassium (mg/l)	2.6	2.8
Bicarbonate (mg/l)	133	136
Sulfate (mg/1)	8.4	7.4
Chloride (mg/1)	3.6	3.5
Fluoride (mg/1)	0.4	0.6
Nitrate (mg/1)	0	0.2
Dissolved Solids (mg/l)	152	161
Hardness (mg/1)	86	85
Specific Conductance (umhos)*		233
pH (pH units)		7.8

^{*} umhos = micromhos.

Source: EPA, Environmental Systems Laboratory, 1982.

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					ESE. PROJE FIELE	ESE, Inc. PROJECT NUMBER FIELD GROUP	STEM-S ALL	DATE 05/0 PR PR LA	PROJECT NAME PROJECT NAME PROJECT MANAGER LAB COORDINATOR	AOZYGO STATUS : PROJECT NAME FORT STEWART PROJECT MANAGER DOYCE BLAIR LAB COORDINATOR KEVIN MCHUGH CAMPIF 10/8
	PARANETERS UNITS	STORET	HSB-1 STEH-S	WSB-2 STEM-S	MSB-3 STEM-S	MSB-4 STEM-S	REPLICATE STEM-S	RINSEBLK STEM-S		
	DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	
	CHLORONETHANE	3442	(29	(29	<28	<29	<29	NRO	NRO	
	UC/KG-DRY BROHOMETHANE	34416	<1.15	4.1>	4.1.	4.15	4.15	NRQ	NRO	
	UG/KG-DRY	34495	<1.9	<1.8	<1.8	<1.9	6.1.9	NRO	NRO	
	UG/KG-DRY	34314	(2.1	<2.1	<2.1	(2.1	<2.1	NRO	NRQ	
	DG/KG-DRY HETHYLENE CHLORIDE	34426	3.9	6.13	3.4	3.3	2.5	NRO	NRO	
	UG/KG-DRY	34499	<1.0	0.15	<1.00	<1.0	<1.0	NRO	NRO	
	UG/KG-DRY	98789	4.12	÷	4.15	4.15	<u>.</u>	NRO	NRO	
	UG/G-DRY	34318	4.15	4.1.	4.1.	4.15	÷.	NRO	NRO	
C-1	UG/KG-DRY	34534	<1.0	<1.0	<1.0	0.1>	VI.0	NRO	NRO	
	UG/KG-DRY	34509	9.1>	41.6	<1.5	41.6	4.1.6	NRO	NRO	
	CARBON TETRACHLORIDE	34	<1.2	-:-	<u>-</u>	<1.2	<1.2	NRO	NRO	
	UG/KG-DRY BROHODICHLOROMETHANE	34	<1.2	<1.2	(1.1)	<1.2	<1.2	NRO	NRO	
	UG/KG-DRY	34544	<1.2	(1.1)	(1.1)	<1.2	<1.2	NRO	NRO	
	UG/KG-DRY TRANS-1,3-DICHLOROPR	34697	<1.0	<1.0	<1.0	<1.0	<1.0	N.P.O	NRO	
	DPENE UG/KG-DRY		0.15	<1.0	<1.0	0.13	<1.0	NRO	NRO	
	BENZENE UG/KG-DRY	34237	€.: .:	<1.3	(1,3	<1.3	4.1.	N NO	NRO	
	DIBROMOCHLOROMETHANE		9.1.5	<1.5	<1.5	41.6	4.1.6	NRO	NRO	
	UG/KG-DRY		6.1.9	6.19	6.1.9	6.1.9	6.1>	NRO	NRO	
	UG/KG-DRY	34	~ 8	\ 8	8	8.1.	<1.8	NRO	NRQ	
	ENE UG/KG-DRY BROHOFORM		(2.9	(2.9	(2.9	(2.9	<3.0	N ORN	NRO	
	UG/KG-DRY	34519	× 8	8.	C1.8	8.1.	8.1.>	NRO	NRO	
	ETHANE UG/KG-DRY	34478	19.0>	09.00	09.0>	(0.61	19.0>	NRO	NRO	
	TOLUENE	34483		33	7	22	56	NRO	NRQ	
	UG/KG-DRY	34304	87.0>	<0.77	40.76	40.78	<0.78	NRO	NRO	
	UC/KG-DRY	DHS								

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					ESE. PROJ FIEL	ESE, Inc. PROJECT NUMBER FIELD GROUP	STEM-S ALL	DATE 05/0 PR PR	PROJECT NAME PROJECT NAME PROJECT MANGER LAB COORDINATOR	PROJECT NAME FORT STEWART PROJECT NAMEER DOYCE BLAIR LAB COMPUNATOR KEVIN MCHUGH
	PARAMETERS UNITS	STORET	NSB-1 STEH-S	WSB-2 STEM-S	WSB-3 STEM-S	NSB-4 STEN-S	REPLICATE STEM-S	RINSEBLK STEW-S	SANTE 10/8 TRPBLK STEN-S	
	DATE		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	
	ETHYLBENZENE	34374	<1.2	<1.2	<1.2	<1.2	<1.2	NRO	NRO	
	2-HEXANONE	75166	<3.7	<3.7	(3.7	<3.7	<3.8	NRO	NRO	
	ACE TONE	75059	<20	<20	<20	<20	<20	NRO	NRO	
	CARBON DISULFIDE	78544	(3.7	(3.7	(3.6	(3.7	(3.7	NRO	NRQ	
	STYRENE UG/KG-DRT	75192	6.15	6.15	6.1.9	6.15	6.15	NRO	NRO	
	UG/KG-DRY VINYL ACETATE	98583	3.	<3.0	<3.0	(3.	<3.1	NRO	NRO	
	UG/KG-DRY XYLENE, SED	45510	<1.2	<1.2	(1.2	<1.2	<1.2	NRO	NRO	
C-2		98677	<1.55	<1.53	<1.52	<1.55	<1.56	NRO	NRO	
£,	2 - BUTANONE	78356	<11.3		-:-	<11.3	<11.4	N O R O	NRO	
	UG/KG-DRY 4-METHYL-2-PENTANONE	99081	<3.20	<3.16	(3,14	<3.20	(3.22	N O R O	NRO	
	UG/KG-DRY ACENAPHTHENE	34208	<150	< 150	<150	< 150	<150	NRO	NRO	
	UG/KG-DRY ACENAPHTHYLENE	34203	<110	0113	<110	VIII)	<110	NRO	NRO	
	DG/KG-DRY ANTHRACENE	34223	<85	<85	<84	98>	98>	NRO	NRO	
	DG/KG-DRY BENZO(A)ANTHRACENE	34529	470	<70	69>	<70	17>	NRO	NRO	
	UG/KG-DRY BENZO(A)PYRENE	34250	<210	<210	<200	<210	<210	NRO	NRO	
	UG/KG-DRY BENZO(B)FLUORANTHENE	34233	<150	<150	<150	<150	<150	NRQ	NRO	
	UG/KG-DRY BENZO(CHI)PERYLENE	34524	<83	<83	<82	*8	(85	N	NRO	
	UG/KG-DRY BENZO(K)FLUORANTHENE	34245	061>	061>	061>	061>	061>	NRO	NRQ	
	CHRYSENE	34323	0110	0112	<110	<110	<110	NRO	NRO	
	DIBEN(A, H) ANTHRACENE	34559	(7)	(72	14	<72	<72	NRO	NRO	
	FLUORANTHENE	34379	<130	<130	<130	<130	<130	NRO	NRO	
	FLUORENE	34384	<120	<120	<120	<120	<120	NRO	NRO	
	UG/KG-DRY INDENO(1,2,3-CD)PYRE	34406	0110	011>	<110	VII0	<110	NRO	NRO	
	NE UG/KG-DRY	34445	<230	<240	<230	<240	<240	NRO	NRQ	
	UC/KG-DRY	25								

				PRO.	ESE, Inc. PROJECT NUMBER		DATE 05/0	05/02/90 STATUS : PROJECT NAME FORT STEWART
				71 [1	D GROUP	STEW-S ALL	PR	PROJECT MANAGER DOYCE BLAIR LAB COORDINATOR KEVIN MCHUGH SAMPLE 10/#
PARAMETERS UNITS	STORET	NSB-1 STEW-S	HSB-2 STEM-S B	MSB-3 STEM-S	NSB-4 STEN-S	REPLICATE STEH-S	RINSEBLK STEM-S	TRPBLK STEM-S
		02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90	02/15/90
PHENANTHRENE	34464	476	475	(75	(1)	(1)	NRO	NRO
PYRENE UC/XC-DRY	34472	(8)	(8)	(80	(82	<82	NRO	NRO
BARIUM, SED	800-	8.28	8.83	7.95	4.36	6.28	NRO	NRO
CADMIUM, SED MC/KG-DRY	1028 AD1CP	<0.416	<0.417	<0.412	<0.420	<0.423	NRO	NRO
SED MC/XG-DRY	1052	10.9	7.77	10.8	(6.00	7.84	NRO	NRO
CHROHIUM, SED	1029	9.58	8.57	18.9	10,5	8.83	NRQ	NRO
SILVER, SED	1078	<0.678	<0.679	(0.671	<0.684	<0.688	NRO	NRO
ARSENIC, SED	1003	<0.547	<0.548	3,35	1.37	4.59	NRO	NRO
SELENIUM, SED	- 148 - 48	<0.476	<0.477	0.531	<0.480	<0.483	NRO	NRO
MERCURY, SED	71921	<0.119	<0.119	<0.118	<0.120	<0.121	NRO	NRO
BARIUM, TOTAL	1007	N O R O	NRO	NRO	NRO	NRO	3.0	NRO
CADMIUM, TOTAL	1027	NRO	NRO	NRO	NRO	NRO	(3.5	NRO
LEAD, TOTAL	105	NRO	NRO	NRO	NRO	NRO	<25.0	NRO
CHROM IUM, TOTAL	1034	NRO	NRO	NRQ	NRO	NRQ	<7.0	NRO
SILVER, TOTAL	701	NRO	NRO	NRO	NRO	NRO	<5.7	NRQ
ARSENIC, TOTAL	1002	NRO	NRO	NRO	NRO	NRO	(2.3	NRQ
SELENIUM, TOTAL	7-1	NRO	NRO	NRO	NRO	NRO	<2.0	NRO
UG/L MERCURY, TOTAL	DF AA 7 1900	N O R O	NRO	NRO	NRO	NRO	<0.2	NRO
UG/L	DCVAA 78133	O S N	ORN	NRO	NRO	NBO	3	0
UG/L I.I.I-TRICHL'ETHANE	34506	NRO	N O O	NRO	NRO	NRO	41.6	(1.6
UG/L	34516	NRO	NRO	NRO	NRO	NRO	<1.5	<1.5
ETHANE UG/L	34511	N N	NRO	N	NRO	NRO	<0.87	<0.87
UG/L I 1-DICHLOROETHANE	34496	NRO	NRO	NRO	NRO	NRO	<0.85	<0.85
UG/L	2450 I	C a	Can	Can	2	NRO	<1.2	<1.2
7/90	DHS	2						•

FORT STEMARY DOYCE BLAIR KEVIN MCHUGH																																								
DATE 05/02/90 STATUS : PROJECT NAME FORT STEWART PROJECT MANAGER DOYCE BLAIR LAB COORDINATOR KEVIN MCHUGH	SAMPLE 10/#	STEM-S	13	05/12/90	12:00	<0.87	<0.97	;	<9.44	<17	(1.1)		86.0>	<2.5	<1.2		<3.1	76.0>	.,	<0.65	¢1.8		<1.2	(24		<1.5		2	0.1>		3.3	9.15		<1.30	<0.86		<0.51	1.2		<0.87
DATE 05/02/ PRO- PRO- LAB	X IOLOG	STEM-S	12	05/12/90	12:30	<0.87	<0.97		<9.44	<17	(1.1)		86 0>	<2.5	<1.2		<3.	76.0>		<0.65	8.1.		<1.2	624	1	<1.5		5.1.5	<1.0		3.7	41.6		<1.30	<0.86		(0.51	2.2		<0.87
STEH-S ALL		STEM-S			10:55	NRO	NRO		NRO	NRO	NRO		NRO	NRO	NRO	,	NRO	NRO		NRO	ORN		NRO	Can		NRO		DXX	NRO		NRO	NRO		NRO	NRO		NRO	Can		NRO
ESE, Inc. PROJECT NUMBER FIELD GROUP		STEM-S	0	05/12/30	12:15	NRO	NRO		NRO	NRO	NRO	•	NRO	NRO	Can	7	NRO	NRO		NRO	CAN		NRO	CON		NRO		NRO	NRO		NRO	NRO		NRO	Can		NRO	CON		NRO
ESE, PROJI FIEL		STEN-3	6	05/12/30	10:55	NRO	NRO	,	NA	NRO	Cax	2	NRO	NRO	Can	2	NRO	NRO		NRO	Can	200	NRO		ONE.	NRO		NRO	NRO		N.O.	NRO		MRO	CON		NRO	003		NRO
		MSB-2	0 00	05/15/90	10:06	NRO	Can		NRO	NRO	Can		NRO	NRO	002	200	NRO	N OR O		NRO	003	2	NRO		NHO	NRO		NRO	NRO		NRO	Can		NRO		O'E	NRO		2 2 2	NRO
		HSB-1	7	05/12/90	08:50	NRO	0	2	NRO	NRO	0	2	NRO	NRO	9	OK.	NRO	N O B O		NRO	2	2 2 2	NRO		NRO	NRO		NRO	NRO		NRO	02		NRO		NRO	NRO		25	NRO
		17001	METHOD			34531	DHS	DAS	99080	81552	SHO	DHS	32101	32104	DMS	344 L3	77041	32 102	DMS	34301	SHO	34311	32106	DMS	344 - 8	34704	DHS	32105	34371	DHS	34423	SHO	SHO	97721		34699	34475	DMS	34010	39180
		6	PARATETERS	0.876	JHIT.	AAN	7/90	1,2-DICHLOROPROPANL	2-BUTANONE	ACE TONE	1/90	BENZENE UC/L	BRONDD I CHLORONE THANE	BROHOFORM	חכי/ר	BROHOHETHANE	CARBON DISULFIDE	UG/L CARRON TETRACHLORIDE	1/90	CHLOROBENZENE	7/00	CHLOROE THANE	CHLOROFORM	UC/L	CHLOROMETHANE	UG/L	ENE UC/L	ROMOCHL	1/90 06/L	חפיר	HETHYLENE CHLORIDE	7/90	STYRENE UG/1	CHC		TRANS-1, 3-DICHLOROPR	TETRACHLOROETHENE	1/90	TOLUENE	TRICHLOROETHENE

**	R DOYCE BLAIR	SAMPLE SAMPLE																																				
05/02/90 STATUS PROJECT NAME	PROJECT MANAGER DOYCE BLANK	SAMPLE	TRPBLK		13	02/15/00			<2.6		9.13		0.17	(3.		NRO	COMPOSIT	NRO	9	OHE	NRO		NRO	NRO	,	NRO	NRO		NRO	NRO	0	0 84	NRO		NRO	0		0
DATE			SCTELL			05/			9.7	4 13		61.0		<3.1		63.8	60 7	1.31	(2.1	0 7/5	6.17	6 37	73.5	<3.8	(2)	1.5.	<4.7	<2.8		8.17	(3.2		(3.1 N	(2.7		<5.9 NRQ		NRO
UMBER JP STEW-S		WSB-4 REPLICATE	4-S STEN-S			15 10.55		O NRO		NRO		MKO	CON	Over	NRO		NRQ		NRO	Can	>	NRO		NRO	NRO	-	NRO	NRQ	NRO		NRO	NRO		NRQ <2	CON		NRO CI.9	Can
PROJECT NUMBER		STFL-0			06/12/90 05/15/90	12:15	NBO	NRO	NRO	מאר	NRQ NRQ		NRQ NRQ	NRO	NRO	NRO	NRO	NRQ NRO		NRQ NRQ		NRO	CON		NRO	NRO		NRQ	NRO	007	ONE	NRO	****	ARO	NRO	6	MRO	NPO
	WSB-2	STEH-S		02/15/90 02			NRO	1	MHO	CON	7	NRO		NRQ		NRO		N	NRO		NRO NRO		NRO NRO	NRO		NRO	NRO NRO		NRO	ONNO		OHE	NRO	-	NRO	NRO		NRO
		S-11.5	×		08:50	002	OHE	NRO	,	NRO		NRO	002	0 20	NRO	,	NRO	N. I	NRO	000	מעול	NRO		NRO	NRO		NRO NI	NRO NRO	NRO	NRO	NRO NRO		NRO	ONN		NRO	N	
	STORFT	METHOD				77057	SMO	39175	SHO	0.00	77103	DHS	34205	CMS	34200	CHS	34220	34526	CHS	34247	CHS	34230	24 C 2 .	CMS	34242			34556			I SHO	34403 NBO		SHO NAO	34461 NDO		SHO NRO	2
9	THATETERS		7 17	3111	VINYL ACFTATE	7/9/1	VINYL CHLORIDE	7/90	CILLALS, TOTAL	2-HFYANOUS	THOMES	ACENAPHTHENE	0671	ACENAPHTHYLENE	7/90	ANTHRACENE	J/SU UG/L	DEM CO (A) ANTHRACENE	BENZO(A)PYBENZ	חפייו	BENZO(B)FLUORANTHENE	חפער	SCHOOL SHI JPERYLENE	BENZO(K)FLUORANTHENE	CHBYSELL UGAL	וויייי	DIBEN' (A. H) ANTH' CENE		7/90		NDENO(2 3-CONGLE	S-CU)PYRE	76	ソ	34	,	06/L 34469	

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DATE STORET STEW- STEW						ESE. PROJ	ESE, Inc. PROJECT NUMBER FIELD GROUP	STEW-W ALL	DATE 05/02/90 STATUS : PROJECT NAME FORT STEWART PROJECT MANAGER DOYCE BLAIR LAB COORDINATOR KEVIN MCHUGH SAMPLE ID/#
DATE		PARAMETERS UNITS	STORET	STEN-H	REPLICATE STEM-H	STEN-N	RINSEBLK STEH-H	STEN-3	
BARIUM, TOTAL 1007 1180 1630 148 2.0 28.5 CADMIUM, TOTAL 1027 (3.5 CA).5 (3.5		DATE TIME		03/08/90	03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
CADRIUM, TOTAL UGCAP		BARIUM, TOTAL	1007	1 180	1630	148	2.0	28.5	NRO
CEAD.TOTAL 1051 284 391 82.8 (25.0 (25.0 to 10.0 t		CADMIUM, TOTAL	1027	<3.5	<3.5	<3.5	<3.5	<3.5	NRO
CHROMIUM, TOTAL DIGAP SILVER, TOTAL DIGAP ARSENIC, TOTAL DIGAP SILVER, TOTAL DIGAP SILVER		UG/L LEAD, TOTAL	1051	284	391	82.8	<25.0	<25.0	MRQ
SILVER, TOTAL DIGAP (S.7 (S.7 (S.7 (S.7 (S.7 (S.7 (S.7 (S.7		UG/L CHROMIUM, TOTAL	DICAP 1034	241	329	54.4	<7.0	13.7	NRO
ARSENIC, TOTAL 1002 8.5 4.8 (2.3 7.2 (2.3 5) 1004 1007 1002 1002 1004 1005 1004 1007 1004 1007 1004 1007 1004 1007 1007		UG/L SILVER, TOTAL	DICAP 1077	<5.7	(5.7	<5.7	(5.7	<5.7	NRO
SELENIUM, TOTAL 1147 2.2 4.6 2.5 3.1 3.4 HERCURY, TOTAL DOWAL CO.2 CO.2 CO.2 CO.2 HERCURY, TOTAL DOWAL CO.2 CO.2 CO.2 CO.2 HERCURY, TOTAL DOWAL CO.2 CO.2 CO.2 CO.2 CO.2 HERCURY, TOTAL TOTAL TOTAL CO.2 CO.2 CO.2 CO.2 CO.2 HILL, 2-2-TETRACHLORO 34516 CI.3 CI.3 CI.3 CI.3 CI.3 HILL, 2-TETRACHLORO 34516 CI.5 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO 34516 CI.5 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO 34516 CI.5 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO 34516 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO THALE A4511 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO CHALE A4511 CI.5 CI.2 CI.5 CI.5 HILL, 2-TETRACHLORO CHALE A4511 CI.5 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO CHARE A3511 CI.5 CI.5 CI.5 CI.5 CI.5 HILL, 2-TETRACHLORO CHARE A3511 CI.1 CI.1 CI.1 CI.1 CI.1 CI.1 CI.1 CI		UG/L ARSENIC, TOTAL	DICAP 1002	8.5	8.4	(2.3	7.2	(2.3	NRO
UC/L		UG/L SELENIUM, TOTAL	DFAA 1147	2.2	4.6	2.5	3.1	3.4	NRO
UC/L DCVAA C C C C C C C C C		UG/L MERCURY TOTAL	DF AA 71900	<0.2	<0.2	<0.2	<0.2	<0.2	NRQ
U. U. L. DHS		UG/L 4-HETHYL-2-PENTANONE	DCVAA 78133	0	0	\$	0	0	8
UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	e an	UG/L	34506	<1.3	ć.:,	<1.3	<1.3	<1.3	<1.3
UC/L DMS		UG/L , , 2, 2-TETRACHLORO	34516	<5	<5	<1.5	<1.5	<1.5	(1.5
DHS CO.85 CO.87 CO.97 CO.98 CO.98 CO.99 C		ETHANE UG/L	34511	4.15		<1.6	41.6	41.6	<1.6
DMS 34501 34501 34501 34501 34501 34501 34501 34501 34501 34501 34501 34501 34501 34500 3450		UG/L	34496	<0.85		<0.85	<0.85	<0.85	(0.85
DMS 34531 OMS 34531 OMS 34541 OMS 34541 OMS 9080 99.080 99.080 99.44 99.4		UG/L	34 50 I	(1.2	<1.2	(1.2	<1.2	<1.2	2.13
DMS 34541 C0.97 C0.98 C0.99 C0.99 C0.97 C0.97 C0.97 C0.97		UG/L UG/L 1 2-DICHLOROETHANE	34531	<0.87	<0.87	(0.87	<0.87	<0.87	(0.87
99080		UG/L 1_2-DICHLOROPROPANE	34541	(0.97	<0.97	(0.97	<0.97	76.0>	(0.97
B1552		UG/L 2-BUTANONE	99080	44.6>	<9.44	44.6>	<9.44	(9.44	<9.44
DMS 34030			DMS 81552	<17	(1)	(1)	75	(1)	(1)
DMS 32101 (0.98 (0.98 (0.98 (0.98 (0.98 DMS 32104 (2.5 (2.5 (2.5 (2.5 (2.5 DMS 34413 (4.2 (4.2 (4.2 (4.2 (4.2 DMS 77041 (3.1 (3.1 (3.1 (3.1 (3.1 DMS 32102 (0.97 (0.97 (0.97 (0.97			34030	<u>-</u> .		1.15	61.15	1.1	(1.1
UG/L DNS UG/L DNS UG/L UG/L DNS (1.2 <1.2 <1.2 <1.2 <1.2 <1.2 <1.2 UG/L DNS		UG/L BROHOD I CHLORONE THANE	32101	86.0>		(0.98	<0.98	(0.98	(0.98
UG/L DMS			32 104	(2.5	<2.5	(2.5		(2.5	(2.5
UG/L DISULFIDE 77041 (3.1 (3.1 (3.1 (3.1 (3.1 (3.1 to 0.97 (0.97 to 0.97 (0.97 to 0.97		UG/L BROHOME THANE	34413	<1.2	<1.2	<1.2	<1.2	<1.2	(1.2
32102 (0.97 (0.97 (0.97 (0.97 (0.97 0.97 0.97 0.98)			77041	£.	3.	<u>C</u>	3.1	3.1	43.1
		UG/L CARBON TETRACHLORIDE	32 102 085	(0.97	(0.97	(0.97	(0.97	(0.97	(0.97

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				717	FIELD CROUP	STEW-W ALL	PROJECT NAME FORT STEWART PROJECT MANAGER DOYCE BLAIR LAB COORDINATOR KEVIN MCHUCH
PARAMETERS UNITS	STORE T METHOD	STEM-17	WMW-I REPLICATE STEH-W 7 10	STEN-12	RINSEBLK STEH-H	STEW-3	TRPBLK SARPLE 10/# STEM-H
D47E 7.1ME		03/08/90	03/08/90	03/08/90	03/08/90	03/08/90	03/08/90
CHLOROBENZENE UGZI	3430	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
CHLOROE THANE	34311	8.1>	<1.8	61.8	. ! >	. 1.8	<1.8
CHLOROFORM	32 106	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
CHL ORONE THANE	34.8	(24	424	(24	<24	<24	(24
CIS-1 3-DICHLOROPROP	34704	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
ROMOCHL	32 105	C.1.3	<1.3	<1.3	<	ć3	<1.3
ETHYL BENZENE UGZI	34371	<1.0	<1.0	0.1>	<1.0	<1.0	<1.0
METHYLENE CHLORIDE	34423	9>	<1.6	9.1>	41.6	<1.6	Ξ
STYRENE	77128	9.1.5	9.1.>	9.1>	41.6	9.1>	61.6
1.2-DICHLOROETHENE. TOTAL LIGAL	9772	<1.30	<1.30	<1.30	<1.30	<1.30	<1.30
÷.	34699	98.0>	98'0>	<0.86	<0.0>	40.86	98.0>
H, OB	34475	15.0>	<0.51	(0.51	<0.51	(0,51	(0.5)
TOLUENE UEZI	34010	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70
TRICHLOROETHENE	39180	<0.87	<0.87	<0.87	<0.87	<0.87	CD 87
US/L VINYL ACETATE	77057	<2.6	<2.6	6 6	4 62	7 ()	7 67
UG/L	DHS				2	0.3	9:3)
1/90	SHO	9	9 >	9.17	9.1>	9.1>	<1.6
INCENES TOTAL	8 55	0.15	0-13	<1.0	0.15	<1.0	<1.0
2-HEXANONE	77103	1.6	5	<3	1 (3)	- 63	
UC/L	14.20S	0.10	0				
1/90	CHS	9	0	9 7	3.8	3.00	NRO
ACENAPHTHYLENE	34200	12.7	<2,7	<2.7	<2.7	<2.7	NRO
ANTHRACENE	34220	(2.1	0	1 63	1.2	,	
חכי/ו	CHS			76.	. 73	.7)	NRO
BLNZO(A)ANTHRACENE UG/L	34526 CMS	90.	0.1.8	× 1 ×	8	. 8	NRO
BENZO(A)PYRENE	34247	<5.2	<5.2	<5.2	(5.2	<5.2	NRO
BENZO(B)FLUORANTHENE	34230	<3.8	<3.8 3.8	<3.8	<3.8	(3.8	NRO

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				ESE, PROJ	ESE, Inc. PROJECT NUMBER	-	DATE 05/02/90 STATUS : PROJECT NAME FORT STEUART
				711.	FIELD GROUP	STEH-H ALL	TOR
			WMW- I REPLICATE	HMW-2	RINSEBLK	HMM-3	TRPBLK SANTLE IU/#
PARAMETERS	STORET	S	N-M3LS	N-H3LS		STEW-W	STEW-H
UNITS	METHOD	7	10	00	Ξ	6	13
DATE		03/08/90	03/08/80	03/08/90	03/08/90	03/08/90	03/08/90
7186		13:40		14:50	14:10	15:30	00:91
BENZO(GHI)PERYLENE UG/L	34 52 I	<2.1	<2.1	<2.1	(2.1	<2.1	NRO
BENZO(K) FLUORANTHENE UG/L	34242 GMS	(4.7	(4.7	<4.7	(4.7	<4.7	NRO
CHRYSENE UG/L	34 320 GHS	<2.8	<2.8	<2.8	<2.8	<2.8	NRQ
DIBEN" (A, H) ANTH'CENE UG/L	34556 GMS	۷ 8	<1.8	<1.8	8.1>	, B	MRQ
TLUORANTHENE UG/L	34 376 CMS	<3.2	<3.2	<3.2	<3.2	<3.2	NRQ
FLUORENE UG/L	34 38 - CMS	0	C3. 1	(3.1	<3.1	3	NRO
INDENO(1,2,3-CD)PYRE NE UG/L	34403 GMS	<2.7	(2.7	(2.7	<2.7	<2.7	NRO
 NAPHTHALENE UG/L	34696 GMS	(5.9	(5.9	(5.9	(5.9	(5.9	NRO
PHENANTHRENE UG/L	3446 I	6.1.9	6.1.9	6.1.9	6.1.9	69	NRO
PYRENE UG/L	34469 GMS	<2.0	<2.0	<2.0	<2.0	<2.0	NRO
150 CO 50	145011850						

TABLE C-1. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EOD-1

		Hercury	Bartum	Lead	Parameters d Cadmium	Chromium	Selentum	Arsenic
Sample ID	Units Detection Limit	9/61	9/64	9/64 1,98	1.98	3.92	19/9	1.96
							į	ì
#1 Center of Ci	rater	0.392	-	60.2	9.61	3.92	108	801
#2 Oublicate o		0.389	11.2	6.65	9.98	801	801	BOL
#3 Transect Member	Taber	0.398	10.7	34.8	1.99	801	0.219	BOL
#4 Transert Hember	Lege	0 394	9.66	41.8	3.94	BOL	B0L	80F
#5 Transert Hember	200	961 0	12.6	28.5	108	BOL	BOL	3.96
A Transact Heather		961 0	15.7	184	3.95	801	BOL	7.93
#7 Transact Homber		951.0	16.7	148	10.8	B0L	BOL	8 9.
AR Transect Member		81.0	17.9	144	15.2	801	B0L	6.1
Transport Hember		961 0	8 12	51.1	3.96	801	801	1.98
#10 Transect Hember	lember	0.197	11.7	35.3	21.8	108	0.199	7.94

TABLE C-2. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EDD-2

		Mercury	Bartum	Lead	ameters		Selentum	. Arsenic
umple 10	Units Sample ID Detection Limit	6,00	9/64	9/64 1.98	1,98	3,92	9/8/	1.96
								1
11 Center of	Crater	3.97	11.5	10	3.97	4.78	0.259	6.
#12 Duplicate of #11	11 m 10	0.368	10.7	101	801	9.4	BOL	6.21
113 Transect Member	Hember	0.38	5.33	88.8	801	BOL	801	7.61
114 Transect Member	Hember	0.395	5.93	-	19.8	4.55	806	60.6
115 Transect	Hember	0.391	7.03	30.1	25.4	108	9	6.6
116 Transect	Hember	0.371	7.42	55.5	801	108	806	87.6
17 Transect	Hember	0.429	9.23	116	2.15	B0L	100	10.0
118 Transect Member	Нешрег	0.373	6.9	35.8	801	BOL	801	6.0
19 Transect Membe	Heinber	0.399	6.39	47.3	BDL	801	800	0.00
120 Transect Member	Hember	0.397	6.78	41.3	1.99	108	BOL	3.3

BOL - below detectable limits

TABLE C-3. CHEMICAL PARAHETERS FOUND IN THE LABORATORY ANALYSIS, AREA EDD-3

				Para	meters			
		Hercury	Bartum	Lead	Cadmium	Chromium	Selentum	Arsenic
	Units	8/61	6/61	6/64	6/61	8/61	6/61	8/61
Sample ID	Sample ID Detection Limit	0.04	0.01	1,98	1,98	1.92	0.2	1.96
#21 Center of Crater	Crater	0.394	Ξ	998	801	801	801	3.94
#22 Duplicate	of #21	0.396	9.72	460	BOL	BOL	B01	1.98
#23 Transect P	Hember	0.399	15.4	97.8	24	10.4	801	16.6
#24 Transect P	Hember	0.395	9.09	3281	1.98	BOL	BOL	5.93
#25 Transect P	Hember	4.0	20.6	164	56	6	B0L	9
#26 Transect P	Member	0.398	23.7	98.1	BDL	108	BOL	5.97
1								
BDL - below de	BDL - below detectable limits							

LE C-4. CHEMICAL PARAMETERS FOUND IN THE LABORATORY ANALYSIS, AREA EDD-4

Hercury Barium Lead Cadmium Chromium Selenium Arsenic Cadmium Chromium Selenium Arsenic Cadmium Chromium Selenium Arsenic Cadmium Cadmium Arsenic Cadmium Ca					Paramet	ers			-
Units percury Barium Lead Cadmium Chromium Selentum Arsento Lips Light Limit 0.04 0.01 1.98 1.98 1.96 1.96 1.97 1.96 1.97 1.96 1.97 1.96 1.97 1.96 1.97 1.96 1.97 1.96 1.97 1.96 1.97 1.97 1.97 1.97 1.97 1.97 1.97 1.97				10000		- 0			TEP
Lion Limit 0.04		Mercury	Barium	Lead	ES LEDES	_	Selentum	Arsenic	Cadmida
Detection Limit 0.04 0.01 1.98 1.96 3.96 0.2 1.96 Crater 0.398 4.18 64.7 53.8 BDL BDL 3.96 of #28 0.414 4.35 166 60 4.35 0.787 4.14 of #28 0.414 4.35 166 60 4.35 0.787 4.14 Hember 0.389 8.17 175 518 8.01 801 801 1.96 Hember 0.402 7.24 35.8 2.01 801 801 6.04 Hember 0.395 4.54 43.2 73.1 4.34 801 801 801 801 Hember 0.4 3.2 19 12 801 801 801 7.99 Hember 0.4 3.2 28 801 801 801 2.99	Units	6/61	6/61	6/61	6/61		6/61	6/64	mg/L
0.398 4.18 64.7 53.8 BDL BDL 3.98 0.414 4.35 166 60 4.35 0.787 4.14 0.389 8.17 175 518 3.69 BDL 21.4 0.395 5.14 45.8 2.01 BDL BDL BDL 6.04 0.395 4.54 432 73.1 4.34 BDL BDL BDL 0.395 0.398 2.78 99.6 1.99 BDL BDL BDL BDL 0.395 0.4 3.2 2.8 BDL BDL BDL 5.95 0.4 3.2 28 BDL BDL BDL 2.99			0.01	1.98	1.98		0.2	1,96	0.1
0.414 4.35 166 60 4.35 0.787 4.14 0.389 8.17 175 518 3.69 800 21.4 0.395 5.14 45.8 2.01 800 800 6.04 0.395 4.54 432 73.1 4.34 800 800 800 800 800 800 800 800 800 80	128 Center of Crater	0.398	4.18	64.7	53.8		801	3.98	BOL
0.389 8.17 175 518 3.69 801 21.4 0.395 5.14 45.8 1.98 801 801 1.98 0.402 7.24 35.8 2.01 801 801 6.04 0.395 4.54 43.2 73.1 4.34 801 801 0.398 2.78 99.6 1.99 801 801 801 0.4 3.2 191 12 801 801 7.99 0.4 3.2 28 801 801 801 7.99	29 Duplicate of #28	0.414	4.35	166	09		0.787	4.14	801
Hember 0.395 5.14 45.8 1.98 B01 B01 1.98 Hember 0.402 7.24 35.8 2.01 B01 B01 6.04 No.395 4.54 4.32 73.1 4.34 B01 3.95 Hember 0.398 2.78 99.6 1.99 B01 B01 B01 Hember 0.4 3.2 191 12 801 B01 7.99 Hember 0.4 3.2 28 B01 B01 B01 2	30 Transect Member	0.389	8.17	175	518		801	21.4	0.43
Hember 0.402 7.24 35.8 2.01 B0L B0L 6.04 Hember 0.395 4.54 43.7 4.34 B0L 3.95 Hember 0.398 2.78 49.6 1,99 B0L B0L B0L Hember 0.4 3.2 191 12 80L B0L 80L 7.99 Hember 0.4 3.2 28 B0L B0L B0L 2	31 Transect Hember	0.395	5.14	45.8	1.98		108	1.98	BOL
Vember 0.395 4.54 4.32 73.11 4.34 BOL 3.95 Vember 0.398 2.78 99.6 1.99 BOL BOL BOL Vember 0.4 3.2 191 12 BOL BOL 7.99 Vember 0.4 3.2 28 BOL BOL 2	32 Transect Member	0.402	7.24	35.8	2.01		801	6.04	BOL
Vember 0.398 2.78 99.6 1.99 BDL BDL Vember 0.4 3.2 191 12 BDL 80L 80L 7.99 Vember 0.4 3.2 28 BDL BOL 80L 2	33 Transect Member	0.395	4.54	432	73.1		B01	3.95	801
Vember 0.4 3.2 191 12 80L 80L 7.99	134 Transect Member	0.398	2.78	9.66	1.99		108	801	801
0.4 3.2 28 BOL BOL BOL 2	135 Transect Member	4.0	3.2	161	1.2		BOL	7.99	801
	136 Transect Member	₩.0	3.2	28	108		108	2	BOL
	301 - below detectable limi	ts							
. below detectable limits	STATE OF STREET, STREE								

APPENDIX D SOIL BORING LOG

APPENDIX 4.1 Results of Soil Boring Program FST-001, FST-002, FST-003

	Depth	Samples	S	Date
Soil Boring	(ft)	Split Spoon	Shelby	Completed
TAC-X Site			1	
TX-B1	50	11		1/16/80
TX-B2	50	11		1/17/80
TX-B3	50	11		1/17/80
TX-B4	50	11		1/17/80
TX-B5	100	21		1/18/80
Camp Oliver S	ite			
CO-B1	100	21 -		1/23/80
CO-B2	50	11		1/21/80
со-вз	50	11		1/21/80
CO-B4	50	11		1/22/80
CO-B5	50	11		1/22/80
South Central		20	1	2/8/80
SC-B1	100	20	1	2/8/80 1/24/80
SC-B1 SC-B2	100 50	11		1/24/80
SC-B1 SC-B2 SC-B3	100 50 50	11 11		1/24/80 1/24/80
SC-B1 SC-B2 SC-B3 SC-B4	100 50	11		1/24/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5	100 50 50 50 50	11 11 11		1/24/80 1/24/80 1/25/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6	100 50 50 50 50 50	11 11 11	 1	1/24/80 1/24/80 1/25/80 2/6/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7	100 50 50 50 50	11 11 10 11	 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6	100 50 50 50 50 50 50	11 11 10 11 11	 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8	100 50 50 50 50 50 50 50	11 11 10 11 11	 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8 SC-B9	100 50 50 50 50 50 50 50 50	11 11 10 11 11 11	1 	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80 1/25/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8 SC-B9 SC-B10	100 50 50 50 50 50 50 50 50	11 11 10 11 11 11	1 	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80 1/25/80 2/1/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8 SC-B9 SC-B10 SC-B11	100 50 50 50 50 50 50 50 50 50	11 11 10 11 11 11 11	1 1 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80 1/25/80 2/1/80 2/5/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8 SC-B9 SC-B10 SC-B11 SC-B12	100 50 50 50 50 50 50 50 50 50	11 11 10 11 11 11 11 11 10	1 1 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80 1/25/80 2/1/80 2/5/80
SC-B1 SC-B2 SC-B3 SC-B4 SC-B5 SC-B6 SC-B7 SC-B8 SC-B9 SC-B10 SC-B11 SC-B12 SC-B13	100 50 50 50 50 50 50 50 50 50 50	11 11 10 11 11 11 11 11 10 10	1 1 1	1/24/80 1/24/80 1/25/80 2/6/80 1/30/80 1/30/80 1/30/80 1/25/80 2/1/80 2/5/80 2/5/80 2/6/80

Source: ESE, 1981.

Source: Geraghty & Miller, Inc., February 1991

APPENDIX 4.2 Results of Well Drilling Program FST-001, FST-002, FST-003

Date	Depth	Yield	Date Completed
			,
AX-C Site			
TX-M1	46.5	7	1/24/80
TX-M2	26.0	10	2/4/80
TX-M3	45.5	4	2/8/80
TX-M4	49.5	3	1/30/80
TX-OW1	47.0	10	4/12/80
Camp Oliver Site			
CO-M1	36.0	0.5	2/13/80
CO-M2	45.5	*	2/17/80
со-н3	25.5	3	2/21/80
CO-M4	46.0	*	2/25/80
South Central Si	te		
SC-M1	25.0	3	2/29/80
SC-M2	21.5	2	3/4/80
66 1/2	25.5	2	3/10/80
SC-M3			2115100
SC-M3 SC-M4	21.5	2	3/15/80
A STATE OF THE PARTY OF THE PAR	21.5 33.5	7	3/19/80
SC-M4			
SC-M4 SC-M5	33.5	7	3/19/80
SC-M4 SC-M5 SC-M6	33.5 27.5	7 3	3/19/80 3/24/80 4/15/80 4/17/80
SC-M4 SC-M5 SC-M6 SC-OW1	33.5 27.5 50.0	7 3 *	3/19/80 3/24/80 4/15/80
SC-M4 SC-M5 SC-M6 SC-OW1 SC-OW2	33.5 27.5 50.0 50.0	7 3 *	3/19/80 3/24/80 4/15/80 4/17/80
SC-M4 SC-M5 SC-M6 SC-OW1 SC-OW2 SC-OW3	33.5 27.5 50.0 50.0 31.0	7 3 * *	3/19/80 3/24/80 4/15/80 4/17/80 4/19/80
SC-M4 SC-M5 SC-M6 SC-OW1 SC-OW2 SC-OW3 SC-OW4	33.5 27.5 50.0 50.0 31.0	7 3 * * *	3/19/80 3/24/80 4/15/80 4/17/80 4/19/80 4/22/80

* Not Measured

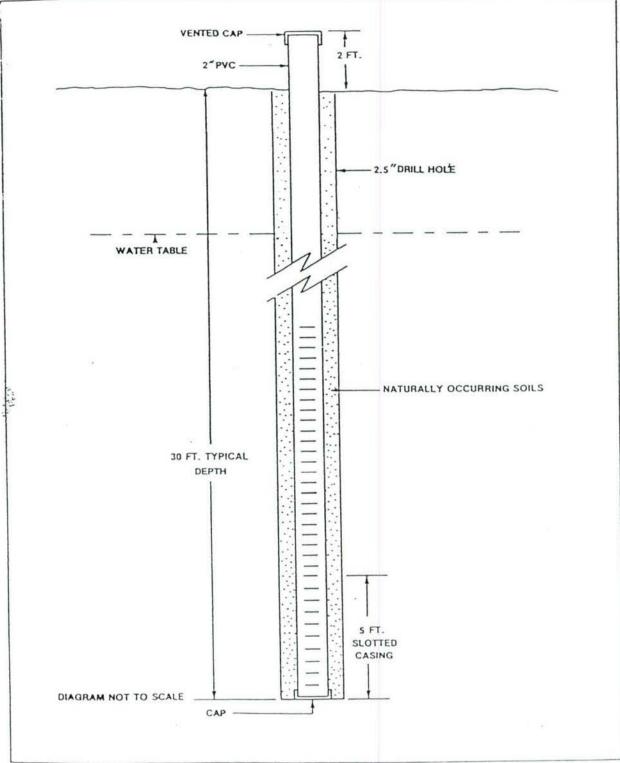
Source: ESE, 1981.

APPENDIX 4.12

Falling Head Permeability Tests
FST-001, FST-002, FST-003

Boring	Sample Number(s)	Depth (ft)	Coefficient of Permeability (cm/sec)
TAC-X Site			
TX-B3	5,6,7 mix	20.0-31.5	8.9×10^{-7}
TX-B4	7,8,9,10 mix	30.0-46.5	5.0×10^{-8}
Camp Oliver S	ite		
со-вз	3,4,5 mix	10.0-21.5	1.9×10^{-8}
CO-B4	4,5,6 mix	15.0-26.5	3.9×10^{-7}
South Central	Site		
SC-B1	2,3,4 mix	5.0-16.5	1.3×10^{-7}
SC-B1	8 (Shelby Tube)	35.0-36.5	2.23×10^{-4}
SC-B3	6,7,8,9 mix	25.0-41.5	3.7×10^{-8}
SC-B5	1,2,3 mix	0.0-11.5	1.6×10^{-6}
SC-B5	4 (Shelby Tube)	15.0-16.5	1.5×10^{-6}
SC-B2	2,3,4 mix	5.0-16.5	2.3×10^{-6}
SC-B6	6,7,8 mix	25.0-36.5	1.4×10^{-5}
SC-B8	3,4,5 mix	10.0-21.5	3.7×10^{-4}
SC-B9	6,7,8 mix	25.0-36.5	3.5×10^{-8}
SC-B10	1,2,3 mix	0.0-11.5	3.2×10^{-5}
SC-B11	4 (Shelby Tube)	15.0-16.5	1.8×10^{-3}
SC-B12	5 (Shelby Tube)	20.0-21.5	2.8×10^{-5}
	2,3,4 mix	5.0-16.5	3.7×10^{-9}
SC-B15-	2,5,4 ш1		
SC-B15- SC-B15	7,8,9 mix	30.0-41.5	5.9×10^{-6}

Source: ESE, 1981.



FORT STEWART Source: U. S. Army Environmental Hygiene Agency 1988
TYPICAL OBSERVATION WELL INSTALLATION

Service Control			V1310	IMSTALL			H-I- H TX-B1	
	HC LO	· S	outh Atlantic		Steva	ATT OF MALE	or 2 s	HEET3
Fort St	evart	RCRA	Studies	10. 31ZE	MO TYPE	ENTION	Solit spoon 15" ID, B	
N 7610	20.89	š E	659616.81		ISL		2240 3 0 000	
DAILLING					cker A		CHATION OF DAILL	
			Laboratories		AL HO. OF			7850
N			TX-B1					5551576()
Robert		er.			VATION C	PURIORIUM N		
DIRECTION							3.00 ATOB	
- Ventic			D40, FROW VER		9.50 0.80 0.00	<u> </u>	/16/80 : 1/16/8	
. THICKHESS	or ove	******	•	200	VATION TO	20 20 02	7	
DEPTH DAI	LLED IN	TO MOCK	0,		ATURE OF		Y FOR BORING	1
. TOTAL OCI	PTH OF 1	OLE	50'			Rev	et thegree	
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF MATER	בואנו	T CORE	BOX OF	(Druine Inchances	~^~
-	-	•	SP 2.5Y 7/2 light gre	, slig	-	1	very loose, ary blo	us/:r
1	\equiv	•	silty fine sand, poor	y, sarge	d	1		ushed
1		0	sale, poor	2.0	1		P	
		00	SB CV 2 SV 5/6					
	-	00	SP-SM 2.5Y 5/6 light olive brown					
	slightly clayey silty			fina		2	very firm, moist	30
1	> —	00	sand, poorly sorted	7.0'			very rirm, morse	30
			said, poorly socced	7.0			l .	
		ام			1			
		1					1	
	=		SM 5 YR 5/2, reddish	grey				
	10 =	0	slightly clayey, silt	y very		3	very stiff, moist	22
	10 =		fine sand		+:		very serre, morse	
	=	0				1		
1		10						
			coarse sand				1	
				1/ 51				
	15	2	grey clay	14.5'	1		F:	17
	15 —	0	SP 10 YR 6/2 light br			4	firm, wet	
		•	grey, slightly silty	line		1	1	
	-	•	sand, poorly sorted	18.0'				
		00		-3	1			
		1	SP-SM 5 YR 6/8, reddi	sh				
	20	00	yellow, silty medium			5	very loose, vet	2
	_	90	coarse sand	21.0'				
					1			
		•						
	-	•						
		•	SP 5Y 5/2 olive grey.	slight	Ly			
	25		silty fine - medium s			6	dense, vet	18
	-	•						
				122 61				
				(27.5	4			
	-	7	cc 6v 6/2	/A			1	
			SC SY 6/2, light olives slightly clavey, silt		1	1		
	1						stiff, moist	11-0

RILLING	LOG (Cont S	hoot) titration for or roll	72.9'		Hole No. TY-B	
A Victoria and Inc.	rt Stevart R	w+31A	Fort Steva	rt, CA		2 2-412
чопауд:	DEFTH LECENO	CASSINGATION OF MATE		100 x 00 1	(Dalling mer. Daniel)	en, depth of
LVATION	35 1 1 1 1 1 1 1 1 1	(D.w.p-)	(32.5') prownish y medium brownish y medium ive grey, um to grey	NO.	Dense, vet loose, vet	15

		200	/1310-4	1431 VEF	1104		34461	i				
	ING LO	c :	outh Atlantic			rt, CA		346673				
FROJECT	F 0115	NCHA	Studies				S. 15" ID. DIE 37	/8				
FORE S					1SL		renzeron istanon et fatte					
N. 76	0796.3		659829.35	12	PACTURE		HATIOM OF OMILL					
Pirrsh	ureh 1	resting	Laboratories		Acker /	1022	DesTURES UNDIS					
HOLC HO.	(~ m-1 —		CH 3AHF	CS TAKE						
HAME OF C			TX-B2	IL TOTA			oxes .					
Robert	Propl			IL CLEV	ATION CA	OUND WA	20.00					
DIRECTION			DEG. FROM VERT.	IL DATE	HOLE	177	17/80 1/17/8					
(2000)	12-03			17. ELEV	ATION TO	P 0 F HOL	e 72.1'					
. THICKHES			1674				гоя воліна	Blous/rt pushed				
. DEPTH DA			50.	19. 31CH	TURE OF	INSEREN!	Drut Gregori					
. TOTAL DE		1002	CLASSIFICATION OF WATERIL		1 COME	BOX OA	псилика					
ELEVATION	DEPTH	LECENO	(Darren)	• • • • • • • • • • • • • • • • • • • •	ERY	HO.						
	-	•	SP 2.5 Y 6/2 light bro			1	loose, moist B.	The state of the s				
	Ξ		grey fine to medium s	and . 25				pushed				
	5	00000	SP-SM 10 YR 5/1, 10 Y 10 R 5/8 mixed red gr brownish yellow sligh clavey silty sand, fin medium	R 6/6 ey,		2	very stiff, moi	st <u>17</u>				
	10	000	SP-SM 10 YR 5/6 yello brown, very slightly silty fine to medium	clayey		3	very firm, moist					
	15	0	SP 10 YR 6/3 pale bromedium to coarse sand		у	4	very firm, moist	29				
	20	•	SP 10 YR 6/8 brownist slightly silty mediu coarse sand, poorly	n to	3	5	firm, moist	1				
	25		SP-SM 7.5 YR 6/6, reyellow clayey, silty medium to coarse san		*	6	soft, moist	_2				
	-			28.0								
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	ь	c	d			1	weekens, etc.	· · · · · · · · · · · · · · · · · · ·
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		+4	SP-SM 10 YR 6/3		1			12
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outh chuncks of grey clay in wash. SM 10 YR 7/8 yellow slightly silty fine to medium sand poorly sorted 7 Very loose, moist 6		1 2	•					Section Control	16	
SM-10 YR 7/8 yellow slightly silty fine to medium sand poorly sorted		25-	•				6	firm, moist	10	
SM-10 YR 7/8 yellow slightly silty fine to medium sand poorly sorted	l.	-	•	The state of the s	lay in		1			
30 silty fine to medium sand 7 Very loose, moist 4		-	•	vasn.						
30 silty fine to medium sand poorly sorted 7 Very loose, moist 4	1	-	•				1			
poorly sorted	1	-	•	SM-10 YR 7/8 yellow sl	ightly					
		30	•		and		7	Very loose, m	oist h	
(32.5')		-		poorly sorted						
		-	•		(32.5')		1			
		-	1			1	1			

DRILLING	roe	Cont	sheet) "ICVATION TOP OF NO	68.5			Hole No. T	X-B3	
FORE S	revart	RCRA	Studies	FORT	Stevas	rt. GA	•	»«n 2	_
REVATION	DEFTH	IECEMO	anssirication of	MATERIALS	Z CORE	SAMPLE	10-line in.	ARKS	_
	ь	c	/ Deurspand	-,	(ay	HO.	weethering, in	· · · · · · · · · · · · · · · · · · ·	1
								2	-
	=		SM	(32.5')					
	_	16							
	=	1	SM-8C 10 YR 5/2 g brown clayey silt			8	Firm, moist	9	1
	35	1	coarse sand, poor				litta, aoise		12
	_	1	15 57	75	-				
		1/4		(37.5')			ľ		
	127.0	11	SP-SM 2.5 Y 5/2 g						
	40_		slightly clayey, to coarse sand, p			9	Firm, moist		1
	=	00	, ,	,				9	
		00							
	N.	00							
	ΞΞ	00	SP-SM 2.5 Y 5/2 g	reyish brown					
	45	00	silty medium to o	coarse sand		10	Loose, moist	-	_ (
	Ξ	99	poorly sorred	(47.5')					
	1 - T	11	SM10 YR 6/1 grey	The state of the s					
	=	0	silty medium to o			11	Loose, moist		20
	50	9				111	Loose, moise	_	-
	=		V.						
	_								
			F-1						
	-								
	Ξ								
	_						İ		
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	=	180							
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	Ξ					i			

reporter and the			V1310~	IMATALL		20.0		34467	I	
	ING LO		South Atlantic		t Stev			or ?	3HEETT	
Fort S	tevart	RCRA	Studies				3H5 WH TIM _ LIL		8.,	
LOCATION	0717.3		659264.50	MSI						
DRILLING	ACCHCY				er AD2	W. 3 DESIG	HATIOH OF DAILL			
Pittsb	urgh T		Laboratories	IL TOTA	L HO. OF	over	10-10-40	U-0-1	,,,,,	
HOLE HO.	25		TX-B4		AND DESCRIPTIONS	2,000 1000	: 11	1		
L HAME OF		-21			ATION CH		LASTON CO.	TOB		
Robert				INTANTED ICOMPLETED						
			044. FROM VENT.	IL DATE	With the second		1/17/80	1/17/8	30	
THICKHES	or ove	*****	*		ATION TO				-	
. DEPTH DA	ILLED 14	TO MOCK	0'	18. TOTAL CORE RECOVERY FOR BORING						
. TOTAL DE	PTH OF	OLE	50			Poly	uthuni	4 /		
ELEVATION	CONTRACTOR AND AND ADDRESS OF	LECENO	CLASSIFICATION OF MATERIA	u	1 COME RECOV- ENY	BOX ON SAMPLE NO.	Diving in the	7 -1-11		
•		·s	SP 10 YR 3/11 grey slip	hcly	-	ľ	Loose, moist	Blow	us/fr	
	=	•	silty fine sand, poorly				powerdinactions of all and and the second		shed	
	=	•	sorted							
			SP 10 YR 5/2 greyish br	oun						
	5		very slightly silty fir			2	Firm, moist		12	
4		NEW .	medium sand poorly sort	ed						
		•		7.5')						
i).	. =	00								
	-	00	SP-SM 10 YR 5/2 greyish very slightly clayey si	The second second						
	10	00	fine to medium sand			3	Firm, moist		15	
		00								
	-	00	(1	12.5')						
		0	1							
		0	SP 10 YR 6/3 pale brown	n						
	15		slightly silty fine to			4	very firm, m	oist	28	
			medium sand, poorly so	rted						
		0								
		•								
			SP 10 YR 4/4 dark yelle	owish						
	20		brown very slightly si			5	loose, moist		6	
	1 2	_	medium sand with very							
			slight amount of organ	ics 22.5'						
		11/	SM							
		12	SC 3.T 10 YR 4/3 brown	very						
	25 -	9/	slightly silty, clayey	The state of the s		6	very stiff,	moist	20	
	3	19	sand							
		1								
		17		28.75						
	3	9	SM 10 YR 4/2 dark grey		1	1				
1	30 =	1	brown, slightly silty			7	very firm, n	DO 15 C	24	
	77,00	0			Į.	1			oist Za	
1/2			to medium sand			1				

OKCI	LOG			67.3			Hole No. TX-84	
Fort S	tevart	RCRA	Studies	For	rt Ste			7
MOITAVI	Otern	ILCINO	CASSIFICATION	Of MATERIALS		MOX O	CA /	2 3 2 3
	ь		10	·····	RECOV.	SAMPL	E (DOWN IN	
					(RY	10.		·h :)
	-							
	_			22.61				
	7-	•	i ————	32.5'				
- 1		11	SM2 5 V (/2)	TANK E O O		1		
- 1	30	1	SM2.5 Y 6/2 ligrey slightly s	ght brownish				
- 1		TI	medium sand	illy fine to		8	very firm, moist	21
- 1	-	17		(22.61)			Di Seles Alangada	-1
1	7	91		(37.5')			1.	
1	7	**					1.	
1	40	00	SP-SM 2.5 Y 6/2	light brownish	- 1			
	40-	00	grey ver, slight	ly clayey,	1	9	firm, moist	2.5
	\exists	00	silty fine sand		- 1		Lata, morse	25
- 1	-	00		(/2 51)	1			
	-	0		(42.5')				
	7	. !	SP 2.5 Y 6/2 lig	ht brownish				
	45_	12	grey very slight	ly silty fine		LO		
	\exists	0	sand	, Line	1	LU	dense, moist	29
1	\exists	•						
		0	77 7 5 11 11 1					
	-	0	SP 2.5 Y 6/2 ligh	nt brownish	1			
	50 7	0	rey very slight. o medium sand	ly clayey fine	- 1	- 1		
- 1	-	1	o medium sand		1	1	dense, moist	54
1	7					į		
1	\dashv	1			1	1		
- 1	=	1				1		
-	\exists			1		1		
1								
	\exists	1			1	1		
		1				1		
				1				
1	\dashv	1		1		- 1		
1	$\overline{}$	1				1		
	7	1				1		
	\exists					1		3
1		1		1		1		9
		- 1		1				
				1	1	1		
	-	1						
	\exists	- 1		1				ļ
	-							ţ
	\exists							t
	7				1			E
	-							H
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				1				F
					1			F
1		010		1				S-

		Ton	V131O**	II-3 FALL	A110m		11-1- 1	3me e T		
THE PERSON NAMED OF	ING LO	-	South Atlantic	The state of the s		rt. GA		or 3 sheets		
i, rhoject		HCDA	Studies				S.S. 15" ID, Bi			
FORE					SL	LOITION	TESAN LIBER - FSED			
N. 76	1028.1		659291.50			ירז טכאום	HATION OF DAILL			
Pittst	ourgh T	esting	Laboratories	٨	cker A	D2				
L HOLE NO.	(A		~ m-l	BUNDER SAMPLES TAKEN! 21						
1 HAME OF 1			TX-B5	IL TOTA	L HUMBE	n Cone n				
	Proph	net		IN ELEVATION CHOUND WATER 3.50' ATOB						
LOINECTIO	4 OF HOL	c		IL DATE	HOLF		The state of the s			
(27.4210	·	₩C L I ₩ K D					1/18/80	1/18/80		
I. THICKNES	s or ove	ROUROCE	•			or or hot				
. DEFTH OF	ILLED IN	TO BOCK	0'			INDREGIT	on			
. TOTAL DE	PTH OF H	·OLE	100'			Roll	rut the ou	4/		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF WATERIA	u	I COME	BOX OF	(Druling (BEMAN	45		
		•	, Description		CHY.	но.		in-initiend		
	92	•	SP 2.5 Y 6/2 light brown			1	loose, moist	Blows/fr		
	-	100	grey slightly silty fire		1			pushed		
		00	with organics poorly so	orted						
		00	SM-SP 2.5 Y 6/4 light							
	, 7	00	yellowish brown very s	lightly	Į.	2	loose miss	6		
	7-	00	clayey silty fine sand			2	loose, moist	6		
		5	poorly sorted							
e	=		SM-SP 5 YR 5/1 grey, v							
	70 =		slightly clayey silty	The state of the s			4.00	1000		
-2.3	10	00	to coarse sand, poorly	sorte	1	3	very firm, mo	ist <u>29</u>		
	=	00	coarse sand and gravel							
	_=	- 1_1 -	(12.5')						
i.	=	0	SP 10 YR 6/2 light bro	unish						
	15	•	grey slightly silty me				40000 000	2.2		
	15	•	sand, poorly sorted			4	dense, wet	33		
i i	_	•								
		•			1					
		•	SP 5 Y 4/1 dark grey s	ilry						
1	20 =	•	fine sand with slight			5	soft, wet	2		
	20	•	of organics				LANGE AT A TOTAL OF THE PARTY O	-		
		•		l						
1		•		23.0'						
1		6	SC 5 Y 5/1 grey, sligh	rlv						
	25_	/ 6	silty clayey silty fin			6	very stiff, r	noist 19		
	25-	6	A SOLUTION AND AND AND A SOLUTION AND ASSOCIATION ASSOCIATION AND ASSOCIATION ASSOCIAT	26.25			anii enimeri	-		
1	=	TT		20.23						
		•								
			SM 5 Y 5/1 grey slight	lv						
1	20 =	+	silty medium to coarse			7	very firm, mo	oist 25		
	30	1	poorly sorted							
		+								
	-			32.5		1				

Fort S	Stewart	RCRA	Studies	72.4"			Hole No. T	
	1	KCKA		Fort	Stew:	ort. C	۸	Sect 2
	ь	(CINO	CASSIFICATION OF	MATERIALS	7. CORE RECOV. ERY	SAMPLI MO.		ARKS Long depth of
	35	•	SP 5 Y 5/2 olive g slightly clayey me coarse sand, poorl SP 5 Y 5/1 grey ve clayey medium to co	dium to y sorted		8	very firm, mo	pist 20-
	40	•	poorly sorted			9	very firm, mo	ist <u>22</u>
	45	0 0	SM10 YR 6/2 light grey slightly silty coarse sand, poorly	medium to		10	dense, vec	34
	50		SM 10 YR 5/1 grey vilightly silty medicoarse sand with slamount of gravel protected	um to		11	very dense, we	ec <u>56</u>
	55	S	SM5 Y 6/1 grey sli ilty medium to coa ith slight amount o oorly sorted	bars as		12	very dense, ve	t <u>50/0.75</u>
	50	u s	M 10 YR 5/1 grey sl ilty medium to coar ith slight amount o ncreasing in size	Se sand	1	Ь	very dense, ue eginning to ose drilling	
6	5 1 1 1 1 1	Si	M 2.5 Y 6/4 light y coun slightly silty and with slight amo cavel	COarse	1	C	ery dense, wer ontinued loss rilling fluid	50/0.50°
7		• SI	(2.5 Y 5/2 greyish ightly silty micaco nd, poorly sorted	brown Pous fine	1	5 h.	ard, moisc ifficult drill	50/0.67

1

			Sheet) Lievanor for or rote 72.4"			Hole No. TX-B5
Fort S	tevart	RCRA	Studies Fort	Scew:	irt, CA	or 3 series
EVAIION	D(FIH	TC(MO	CLASSIFICATION OF MATERIALS	T CORE	SAMPLE HO	
•	ь	c	d	e	(5
		}				
	-		72.5*			
	=	•				
	75		SP 2.5 Y 5/2 greyish brown very slightly silty micaceous		16	very hard, moist 50
	/ / -		very sirginity sirty wieaceous		10	difficult drilling
	_					ľ
	=		SP 2.5 Y 6/2 light greyish			
	80	•	brown very slightly silty,		17	very hard, moist 50/0.92
	=	•	micaceous medium to coarse			difficult drilling
	=	•	sand			
	=	•				
	-	•	SP 5 Y 6/1 grey slightly			
	85		silty micaceous fine sand		18	hard, vet 50/0,92 difficult drilling
	<u></u>					dirition division
	=		SP 5 Y 5/2 olive grey			
	90	0	slightly silty micaceous fine		19	hard, wet 50/0.92
	=	•	sand			difficult drilling
	_ =	•				
	-	•				
	_ =	•	SP - 5 Y 4/1 dark grey			
	95		slightly silty micaceous fine sand		20	hard, wet 50/0,79 difficult drilling
	-					
	_	•	SP 5 Y 5/3 olive, slightly			
	_	•	SP 5 Y 5/3 olive, slightly silty micaceous fine sand		1	hard, wet difficult
	100	0			21	drilling 50/0.83
	_					
	-					
		}				
					Ì	
	=	-				
	_	1				
		}				
	-		(3)			
	_				1	
	_	1				

			istom	Fort St		Ca	1	HEET T		
	HC LOC	50	oth Atlantic				plit-spoon Is"	10.611	1 7/	
FORE S	cevart	RCRA	Studies	II. BATU	TON EL	KAXLIGH	THOWN THOO		2 11	
LOCATION	15-75-76	31	E. 608748.37	1	MS1.					
The second second	CENCY			12 4440		er AD2	MATION OF DAILL			
Pictsb	urgn ic	sting	Laboratories	I). TOTA		OVER.		U D- + T U	• • •	
A HOLE HO.			CO-B1	•uno	CH 3VUL	. 23 TAKE	: :: ::			
1 HAME OF 0	MILLER			IN CLEVATION CHOUND WATER 11.75 @ 24 hrs						
Robert	Prophe	t		IL ELEV	ATION CA					
DIRECTION			044, FROM VERT	IL DATE				23/88		
			ACRONICAL FOR VERSION AND ACROSS	17. ELEV	ATION TO	or not	c 143.91			
7. THICKHES							ton bonina		,	
. DEPTH DA			100	19. 3IGH/	ATURE OF	175.6)	A.I .			
. TOTAL DE	PTH OF H	OLE			1 COME	1	my Migal	4		
ELEVATION	DEPTH	EGENO	(Despen)	144	ACCOV-	MO.	(Drotters in)	diamine	20-1	
	0.	•	•		NOSIDES	1			s/fi	
	\exists	•	SP 7.5 YR 5/6 strong to			1			shed	
		•	slightly silty, slight clayey, poorly sorted	fine				1,000		
		0	sand	2.75		1				
		61	SM 2.5 YR 4/6 red		i					
	5_	10	clayey silty medium to	0		2	stiff, moist		11	
	=		coarse sand							
		1		(7.5)						
	-	100			1					
			SM-SP 5 YR 6/8 reddis	h					20	
	10_	60	yellow, slightly clay	ey,	1	3	very stiff, w	et .	20	
		001	silty, fine to medium	(12.5	1					
	=	00		(12.3	1					
1		9			1	1				
		19	SC 5Y 8/2, 5 YR 7/6 T	ixed	1	1		Walter Brief	1.7	
	15	9	white, reddish yellow		1	4	very stiff, o	noist	17	
1		19	slightly silty, claye	y fine						
1		9	sand, sand component at 17'	Increas	ľ	1				
1		19			1					
		9	SC 10 YR 6/6 brownish	yellow	'	1 -				
	20	19	silty, clayey fine sa	and		5	stiff, vet		-	
		9				1				
1 .		19	1							
		9								
1	=	19	SC 5 YR 6/4 light re-	ddish			stiff, moist		1	
	25	19	brown	au cand		6	Still, morse		-	
	1 2	1 9	slightly silty, clay	27.0°						
	1	1								
	1 =	••								
	=	••	SP-SM 2.5Y 7/2 light	grey		7	medium densi	r v		
1	30	-	clayey silty poorly	sorted		/	moist	-1.	-	

- 1757			heet)	143		12/2	Hole No.	CO-B1	
For	t Stev	art RC	RA Studies	Fort	Steva	rt, CA		03	3+ec e y 3
	осетн Б	rect HO	CASSIFICATION OF MA	1(8145	T CORE	SAMPLE MO.	(Dalling in	*	
			-	32.5'					
	35 —	**	SP-S: 10 YR 8/4 very brown slightly o silty poorly sorted	clayey,		8	stiff, mcd	: dium mois	st <u>10</u>
	40	8 9 8	SP-SM 7.5 6/4 pale clayey, silty fine			9	stiff, mo	ist	_9_
	45	99	SC-SM 5Y 7/4, 10 YR pale yellow, yellow clayey, silty fine			10	very stif	f, moist	17
	50	99	SC-SM 5Y 6/4 pale of clayey, silty, cour	se sand		11	very stif	ff, moist	25
	55	99	SP-SM 2.5Y 7/4 pale silty clayey medius sand poorly sorted			12	very den		50/0.42
	60 _	00	SP-SM 2.5 7/4 pale very slightly clay fine to medium poo sand	ey silty		13	very den moist	se,	50/0.83
	65 -		SP-SM 10 YR 7/4 ve brown very slightl silty medium to co sorted sand	y clayey	y	14	very den	se,	50/0.58
	70 _		SP-SM 2.5Y 8/2 whi clayey, silty, fin medium sand			15	hard, mo	oist	50/0.75

RILLING	roc	(Cont S	sheet) " 143.9"			Holo No. CC	D-B1
			mestallation.	ort Ste	wart, C/		>+cr 3
701	T See	ī	CASSIFICATION OF MATERIALS		E BOX OR	i sem	OKZ ZHELIZ
ELEVATION .	DEFIN	rectivo.	(Dunper)	RECO			of merchanis
	ь		đ		ſ		
	_						
	=		(72.	5'X			
	_	1			ļ		
	_					1	
	75 _	41	SM 10 YR 7/3 very pale brow	0	16	hard, moist	50/0.7
	2	1 4	clayey silty medium sand			0	
	=	+			1		
		1	78	- 5			
	=	+-	SP-SM 10 YR 7/2 light grey				FO.10 -
	80	00	clayey silty medium sand		17	hard, moist	50/0.5
	=	00				Сещенсеа	
		00				1	
	=	00					
	=	100	SP-SM 10 YR 8/1 white		19	dense, moist	64/0.5
	85 —	00	clayey silty fine sand alternating layers some		18	dense, moisc	04/0.5
	=	00	cemented some not				
	=	100					
	90 =	00	SP-SM SY 8/1 white clayey, fine sand - silty		19	dense, moist	
į.	-	00	fine sand (mixed)			1	
	=	00					
	-	00	94.2	5'			
	=	00					
	95 _	//	CH blue-lavender; no Munse	1	20	very stiff,	moist 2
	-	1//	soil equivalent silty clay		1	1	
	2	1/	97.	3			
	-	•			1	1	
		•	SP 10 YR 7/6 yellow silty		21	very dense,	50/0.7
	100_	-	to medium poorly graded san	ia	21	moist	3070.7
	1 =	1					
	_	1			1		
	=	1			1		
	1 =	-					
	-						
	1 3	1					
	-	1					
	1 =	1					
	-	1					

APPENDIX 4.4		Hala Ha.	CO-82	
	()((1)()+	INSTACLATION	SHEET	

DRILL	ING LOG	S	outh Atlantic		Stevart	01		OF 7 3HE	CTS
FORE S	tevart	RCRA	Studies	10. 312 E	איים דיריב	OF BIT S	Split spoon 12	S'I.D. bi	1 5 70
2 LOCATION	10-mm		1000	1	MS			5 //0	
N 75	1.71.7 - 28	8 E	608893.43				HATION OF DHILL		
1 DAILLING	ACCHCY	neri-	Laboratories		er AD2				
Pittsb			CO-B2	11 TOTA	CH 34MPL	CS TAKE	11	U	• • •
T HAME OF C	Inii 1 6		1 77						
	Proph	et		12 CLEV	ATION CA	OUHD *A	TER 4.17' @ 24		
& DIMECTION				IL DATE	HO! =			123 100	
() ventic			DEG. FROM VERT.		VATION TO	2007-200-00	,	1/21/80	
7. THICKHES	s or over	1000CH					YIFON DONING		
. DEPTH DR	ILLED INT	TO MOCK			ATURE OF				-
. TOTAL DE		_	50*	Vice to Williams		-KJ	but then a	44/	
ELEVATION	DEPTH		CLASSIFICATION OF MATERIA	10	1 COME RECOV- EMY	HO.	(Drulling In)	nks I down	
		٠.		17/8	-	1		7	
	+	00	SP-SM 10 YR 5/4 yellow		1	1	soft, dry	Blows	
1	コ	00	brown very slightly cla		l = -j	1 3	1	Push	ned _
1		od	silty fine sand with ve		1 /	1 4	Į.		F
1	\exists	0	slight amounts of coars	se sand	4	1 3	ţ.		
1 1		11	SP-SM 10 YR 7/8 yellou	clave	ļ. \	1 1			-
1 1	5_	90	silty fine to medium s	The second second		2	soft, moist		-3
1	\vdash	00	with gravel		1	1 4			
	7	00	6	i		1 7	Į.		
		00		1	1	1 4	Į.		F
Į l		60	O THE SHAPE SHAPE		1	1	1		
N. 1-	=	00	SP-SM 2.5 YR 6/8 light		1	1 4			27
100	10-	1 1	very slightly clayey s	ilty	1	3	hard, moist		37
1	1 =	03	fine to medium sand wi	Lth	1	1 1	1		
1		00	very slight amounts of	grave	†	1			
1	-	00	3			1	1		
1		00	cp cy s ym c (n			1			
1	15	00	SP-SM 5 YR 6/8 reddish	*	1	4	very stiff,	moist	26
	15	00	yellow, silty medium		1		, selli,	1	F
		00	sand with gravel	18.0'					
1		00	1	20:17					-
			7,007 22 023	7900	+	1			
		l º	SM 7.5 YR 7/8 reddish		1	1		me fr	1,1
	20_	0	silty coarse sand poor	rly		5	firm, wet so		4 11
	-	9	sorted, with slight am	Junou			loss at 20 -	41	
1	1 7	+	of gravel						
		1 4	1						
1	1 -	1				1	1		
1	7	11	SM 10R 6/6 light red	15/0-27			75000000		
	25	117	slightly clayey silty	fine		6	loose, moist	C.	10
		171	sand						
1		1							
1		+	1		T		1		
1			THE SECONDARY CO.		1		1		
1		1 +	SM 10R 6/8 light red	: 1960-1	1		6		L
4	30	111	slightly silty medium		1	7	firm, vet	. 1-	-1"
	1 =	LI	coarse sand with grave		1		beginning to		g. F
	1 =	111		(32.5")		drilling flo	urd at 2	
1	1 =		1		1	1			

			Sheet) The same for or -or	mestallation			Hole No. Ci	»··· 2
ort :	Stavart	RCRA	Studies	Fort Steva				Ø 2 seets
MOITAY	ре г тн Б	(CEND	CASSIFICATION OF		T CORE	SAMPLE NO.	(Dalles une. w.	cases love, depth of confinence;
	_							
	=			(32.5')				
	-		N STEEDS VENEY UNION H					
	35_	•	SP 10R 6/6 ligh medium to coarse	t red		8	firm, wet	13
	33	•	gravel	June - Zen			easy drillin	g continual
		•				,	loss of dril	ling fluids
	-	•						
	_ =	•	SP 10R 6/6 ligh medium to coarse	t red			firm, wet	15
	40	•	gravel	sand oith		,	losing drill	ing fluid
	1 =	•				1		
	=	•						
	Ξ.		SP 10 YR 7/8 ye	llov		10	firm, wet wi	th 1:
	45	•	medium to coarse gravel	sand Olth		10	continual lo	ss of fluid
	1 =	•					to 50'	
	-						1	
	I E	•	SP 2.5Y 7/8 yel	lou		11	firm, wet fl	uid loss 2
	50		medium to coarse	sand with gr	avel	11	111,	_
	1 7				î			
	-							
	-		j.					
	-							
	1 =							
	-	1						
	12							
		1						
	1	1						
		1						
		1						
	1	=				Ì		

2 1						
Fort Stewart, GA or 2 sheets						
3 778"						
13. TOTAL HO. OF OVER- DISTURBED UNDISTURBED						
13. ELEVATION CHOUND WATER 2.83' € 24 hrs.						
-21-80						
*						
*3						
Iden depth at						
Blows/IC						
Pushed						
3						
-						
37						
14						
14						
_10						
1						
-						
t <u>1</u>						
AL.						

RILLING	LOG (Cont S	heat)	123.4			Hole No. CO-	
			RA Studies	FOTE	Steva	rt, GA		or 2 seems
(ILVATION	DEFTH	UCENO	CLASSIFICATION OF		T. CORE RECOV. ERY	SAMPLE NO.	10.11	· lan. depth of
	ь	c ••••	d					Blous/Fr
	35	* * *	SM-SP 5 Y 8/2 pa slightly clayey, medium to coarse	silty		8	stiff, moist	10
	40	1 1 1	SM-SP 5 Y 7/2 li slightly clayey, medium to coarse	, silty,		9	stiff, moist	31
	45		SM 5 Y 7/2 ligh silty very fine	44.0' c grey to fine sand		10	stiff, moist	_8
	50_		SM 10 YR 8/2 wh very fine to fi	ite, silty ne sand		11	stiff, moist	45
	-				* 1			
	-							
1	-							

H-I- H-. CO-84

SHEET I

DOLL	HC LOC		outh Atlantic	FORE	Stewar	t. GA		or 2 sheets		
	HC COC	1 30	yden neximere				lit spoon 1:5			
FORE SI	cevart F	CRA S	Studies				HOAN (LUN - FRID			
LOCATION	1Candana	31	1-1	MSL						
N. 755	140.67	Ε.	609482.36	Acker AD2						
Pittsb	urgh Tes	sting	Laboratories	13. TOTAL	1000000	OVER	10-10-40	U-DISTURSED		
HOLE HO. (A		a miet	- BUAO	CH SAUFE	ES TAKEN	11	-13		
HAME OF D			CO-B4	IL TOTA	-	- COME -0	×cs			
	Prophet	c		IS CLEV	ATION CH	OUNO WAT	4.08' @ 2			
DIRECTION	OF HOLE			IL DATE	HOLE	** ^ ~		-22-80		
W-TIC	*r IMC	LIMKO.	040. FROM VERT		elelysocials			-22-00		
THICKHES	OF OVERD	UNDCH			Minuspine villa	- OF HOL				
DEPTH DA			0'			INTEGRAL	ran Bonine			
. TOTAL DE			50,	7		The state of the s	ut theor	u /		
*LEVATION			CLASSIFICATION OF WATER	٠ داما	1 COME	SAMPLE	(Poulles in August			
			1		ENY	но.	-monneyie.	(Jenessen		
		ed	SP-SM 10 YR 6/8 brown			1	firm, moist	Blows/It		
1		00	yellow, slightly clay	rey,				Pushed		
			silty fine sand							
	\exists	00								
	\exists		SP-SM 7.5 YR 6/8 redd			2	eriff main	1		
	5	اير	yellow, slightly clay	ey,		2	stiff, moist	. 1.		
	\exists	00	silty fine to medium							
	=	-	with pebbles and grav	VET.						
		00								
**************************************		00	SP-SM 7.5 YR 7/8 red	dish						
(1) (1)	10	00	yellow, clayey silty			3	very stiff,	moist 2		
		00	sand with gravel							
	=	00	7 A MARCO							
		00								
		00		14.0						
5	15	0	SM 10 R 5/4 weak red			4	stiff, mois	ī <u>1</u>		
	1	0	slightly clayey, sil							
		0	fine sand	- 1. Company						
		•				1 1				
			SM lavender-red no M	unsell						
		II	soil equivalent. Ve			5	stiff, mois	t		
5	20	T	slightly clayey, sil					-		
	1 7	1	sand	-)						
			23113							
1		1								
		•	SM 10 R 6/4 pale red	, very						
1	25		slightly clayey, sil			6	loose, mois	t j		
1		•	fine sand							
	=			27.0'		1 3				
1		-								
1										
	30	1	SP-Sil 5 Y 8/2 white	1 ru - 6 i		7	stiff, nois	i t		
	30		slightly clayey, sil			1 '	gradual los			
			Sand, Strightly with				drilling fl			
		0-0		32.5'		0.000	The state of the s			

Fort Stewart, GA

FST-002 PAGE A-25

tog (com s		123.4			Hole No. CO-B4	-
Stewart RCRA	Studies	Fort St	evart,		o 2 3 mm cm	
DELH RECEND	CLASSIFICATION	OF MATERIALS	T CORE	SAMPLE MO.		,
		32.5'				
35	slightly claye	white, very by micaceous ad)	8	hard, moist difficult drilling	35
40	SM 5 Y 7/2 lig micaceous silu	ty fine sand		9	hard, moist difficult drilling	43
45 00	SP-SM 5 Y 8/1 fine - medium	white, silty		10	stiff, wet difficult drilling	_6
50	slightly clay	ey, silty fin	e e	11	hard, moist 50/0 difficult drilling	1.75
	a					
	OLFIN LICINO b 40 45 50	SP-SM 5 Y 8/2 slightly clayersilty fine san SP-SM 5 Y 8/1 fine - medium SP-SM 7.5 YR slightly clayersilty clayersilty fine san SP-SM 7.5 YR slightly clayersilty clayersilty fine san SP-SM 7.5 YR slightly clayersilty cl	SP-SM 5 Y 8/2 white, very slightly clayey micaceous silty fine sand SP-SM 5 Y 8/1 white, sand (37.5' SM 5 Y 7/2 light grey, micaceous silty fine sand 42.0' SP-SM 5 Y 8/1 white, silty fine - medium sand SP-SM 7.5 YR 6/4 light brow slightly clayey, silty fine to medium sand	SP-SM 5 Y 8/2 white, very slightly clayey micaceous silty fine sand SP-SM 5 Y 8/1 white, silty fine - medium sand SP-SM 7.5 YR 6/4 light brown slightly clayey, silty fine to medium sand	SP-SM 5 Y 8/2 white, very slightly clayey micaceous silty fine sand SP-SM 5 Y 8/1 white, silty fine - medium sand SP-SM 7.5 YR 6/4 light brown slightly clayey, silty fine to medium sand 11	SP-SM 5 Y 8/2 white, very slightly clayey micaceous silty fine sand SP-SM 5 Y 8/1 white, silty fine - medium sand SP-SM 7.5 Y 8/4 light brown slightly clayey, silty fine to medium sand SP-SM 7.5 Y 8/4 light brown slightly clayey, silty fine to medium sand SP-SM 7.5 Y 8/4 light brown slightly clayey, silty fine to medium sand 10 difficult drilling

APPENDIZ	A 4.4						H-1- H CU-101			
STATE OF THE PARTY	ING LO		outh Atlantic	100000000000000000000000000000000000000	Stevar		or 2	346673		
			S 74 3 -	10. 31 Z C	MO TYPE	OF BIT S	plic spoon 15" ID, B	it si		
Farr St	evart	RCRA S	tudies	-	M FON EL	CAYLION	THOWNTINE - MILL IN 3 7/	8		
	10	3	609482.36	MSL	FACTURE	M'3 DENG	HATIOH OF DAILL			
				_	er AD2					
Dierehu	reh To	esting	Laboratories	13. TOT	L HO. OF	OVER-	O-TURNED U-DIST	J==40		
- HOLE HO.	٠٠		CO-B5			A COME B				
A HAME OF	חוררנה			12 CLEVATION CHOUND WATER 3.33" @ 24 hours						
Robert	Prophi			INTANTED ICOMPLETED						
DVENTION			040. FROM VER			or or not	-22-80 1-22-8	30		
7. THICKNES	s or ove	CABUROCA	4)				FOM BORING			
. OCPTH OR			0.			INTAKCT				
. TOTAL DE			50"	7		Kul	but shesony.			
ELEVATION		LECEMO	CLASSIFICATION OF MATE	טאוו	I COME	BOX OR SAMPLE HO.	(Drustere (- 1/2 - 1/2) entire			
-					•	1	٠,٠	ws/ft		
	-	80	SP-SM 7.5 YR 5/6 str			1	stiff, moist Blo			
	=	00	brown slightly claye silty fine to medium	y, sand			bus	iieu		
	_		SILLY LINE CO DEGLOR	2.0'						
	-		SM 2.5 YR 5/6 red, v		1			2.5		
1	5_	II F	slightly clayey, sil	ty very	1	2	very stiff, moist	21		
	3-	1 ! ĭ	fine sand							
	1 =	111		(7.5')						
	-	1 9	α	(1.5)	1	1				
1	-	00								
	1 -	-	SP-SM 5 YR 6/8 reddi				the code at a second second	21		
	10_	100	yellow clayey, silty	y medium		3	hard, moist	31		
13"		لم ا	to coarse sand		1		difficult drilling	>		
1	1 3	1 19		(12.5')						
1	1	100			1	1				
	1	76	1 55 5 m (1/ - 11/-1	uallar.						
	1	J 8	SC 5 YR 6/6 reddish			4	hard, moist	17		
	15_	18	slightly clayey fine	corred			HERE'S MANUAL			
		7/6	medium sand, poorly	Sorted						
1		1/								
	-	∃ /° /	1			1 -				
		7 %	SC 7.5 YR 7/8 reddi	sh vello	4	1				
	20	7 /	clayey fine to medi			5	stiff, vet	14		
1	20_	7 1	poorly sorted							
1		1 8	1 00011, 301111		7:		1			
1		1		(22.5')	1	1			
1		-								
		7 1	SM 7.5 YR 7/8 reddi					177		
1	25_	= 11	yellow slightly sil	Lty.		6	firm, wet	17		
		71	medium to coarse sa	and with						
1		7 1	slight amount of gr	ravel		1				
	_	7 1								
		1 1	•							
		- 1	SM, 2.5 YR 6/8 light	t red	1	2	loose, moist	1.0		
1	30-	7 1 4	slightly silty med	1um Co		7	1005e, moise	-		
		7 1	coarse sand							
		1 1		77 6			1			

KILLIIVO	LOG (Cont	Shoot) Trevalen 100 00 150				Hole No.	O-B5	
Fort	Stewart RCRA	Studies	Fort Steva	rt, C	A		or 2 seems	
(UVA110H	ה ל ה ל ה או ה או ה או ה או ה או ה או ה	0 4 Daysincation of		7. CORE RECOV. ERY	SAMPLE MO.	Dolling time, we workering, its	ARKS	Ď.
	35		ght red, edium to slight amous ou, silty sand with gravel lou, silty e sand	•		firm, moist beginning to drilling fifth, moist with conting of drilling 50 feet	to loose	11 13 200

1 L.NDIN		1	V1310-4	Lux			Hal- Ha.		
DRILL	ING L	2.14.2	South Atlantic	Fort	Stewar	t CA		34461 .	
PHOJECT							S.S. 15" I.D.,	Dir 3 34	***
			\ Studies	11. GATE	I TON TI	CEVATION	בונה ב שמדו שיסחד	DIC 3 7,	8
N 68			660530.34		SL				
DAILLING				4	and the same of the same		CHATION OF DAILL		
Pitts	burgh	Testin	ng Laboratories		cker A		0	10000	
M	(^~-		SC-B1	BUNG	CH JAME	CES TAKE	19	1	- 40
-	DAILLE	100	, 50 51			A CONE			
Rober	t Pro			12 ELEVATION CROUND VATER 10.75' @ 24 hrs.					
Ø *****		100	DEO, FROM VERT.	IL DATE	-		2/7/80	2/8/80	
THICKHES	s or ov	CABUROC	н			OF OF HO	33.3		
DEFTH DE	ILLED I	HTO MOCH	0'				Y FOR BORING		1
TOTAL DE	PTH OF	HOLE	100'	19. 31CH	ATURE OF	75.9	L Hum		
Contract Contract					1 COME	loox on	Mary arm	Mu /	
	DEPTH	LEGENO	(Description)		ACCOV-	HO.	(Dilling the	~~ 1	,
	-	10/	SC 2.5 YR 5/6, 5 YR 7/2	2, 5 YR		,		Blons	/rt
	=	1 /6	6/1, mixed red, pinkish	grey,		1	loose, moist	push	ned
		14/	grey clayey fine sand	(2.5')				
	Ξ	1 6							
	_	1	SM10 YR 8/1 white, sli	ightly					
	5-	11	silty fine sand, very s			2	loose, moist		1_
	=	111	amount of clay				Composition of the Prince Sciilly		
	_	11							
	_	119	F-1						
	-	9				1			
	_ =		SM10 YR 8/2 white, sli	ightly					
	10	•	silty fine sand, very	slight		3	very loose, m	oist	2
	=	6	amount of clay			1			
	-								
	_								
	_	111	SM 7.5 YR 8/2 white, si	ilev					
	15_		fine sand, slight amoun	1,50		4	very loose, m	oisr	1
	-	1 9	clay	01			very 1003e, a	0130	
		9				1			
		1 6	()	17.5')					
	=	6							
	-	16	SC 10 YR 7/8 yellow sil	Lty,		1			
	20	/ /	clayey fine to medium s	sand,		5	very loose, m	osit	2
		1	poorly sorted						
	<u> </u>	10/		22.75'					
	-			22.75		1			
	_	•	SP 7.5 YR 6/6 reddist	1	*1				
		•	yellow, very slightly			6	very loose, m	oist	3
	25		micaceous medium to co.			,	, 10036, 111	2236	_
	_	-	sand, slight amount of						
	2	•		8 4. 1					
	-	•		.					
	-	•	SP 2.5 Y 7/4 7.5 YR 7/1						
	70 =	•	mixed pale yellow, redd			7	loose, moist		50
	30		yellow, very slightly	silty					15
	100		micaceous fine sand						
1			(32.5")					

DRILLING	LOG	(Cont S	sheet) " or or or or or	59.9.			Hole No. SC-B1	
				Fort	Steva	rt, G/		3 30003
(LEVATION	ости	IICIHO	CLASSIFICATION OF MA			SAMPLE NO.		Inn. depth of
	35 —		SN 10 YR 7/2 light fine sand SP-SM 10 YR 6/1 gre slightly clayey, si	37.75' y, very lty fine		8	shelby tube very hard, mois difficult dril	
	45_		SM2.5 Y 5/1 grey, slamicaceous fine to copoorly sorted	4F.5		10	very hard, moi	st
	50	00	SP-SM 5 Y 6/2 light very slightly claye micaceous fine sand	y, silty		11	hard, poist difficult dril	ling
	55_		SM 5 Y 5/1 grey silmicaceous fine to			1.2	hard, moist difficult dril	ling
	60_	8 8 8	SP-SM 5 Y 6/1 grey to medium sand	, silty fine		13	hard, moist difficult dril	<u>50/0</u> ling
	65		SP - SM 5 Y 6/1 gr fine to medium san slight amount of c	d, with		. 14	very stiff, modifficult dril	
	70		SP-SM 5 Y 6/1 grey fine to medium san slight amount of c	d, with		15	hard, moist difficult dri	lling

DRILLING LOG (Cont Shout) 59.9' Hole No. SC-B1 **** >411 3 Fort Stewart RCRA Studies Fort Stewart, GA 0 3 mm TECOVE SAMPLE REMARKS CASSIFICATION OF MATERIALS (Dollar water land depth of DEFTH ILCENO MON ANDIN (D.unp.-) ERY NO. 72.5' No sample, lost sampler in hard, difficult 50/0.83 75 hole drilling (77.5')SM 5 Y 6/2 Light olive grey, 80-17 hard, difficult slightly silty, micaceous fine drilling, loose zone sand below 80' SM 5 Y 6/1 grey, slightly very hard, difficult 50 18 silty fine sand, poorly sorted drilling (87.5') SP-SM 5 Y 6/1 grey, silty fine hard, difficult 50/0.75 sand, poorly sorted 19 drilling (92.5'). SM 5 Y 6/1 grey, slightly hard, difficult silty fine sand, poorly sorted drilling SM 5 Y 5/1 grey, slightly silty fine sand, poorly 21 hard, difficult 77 sorted 100drilling

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			1310+	THAT ALL	HOIT			34661		
DRILLI	HG LOG		South Atlantic	FOIL	Steva	EL GA		0- 2 30	*****	
FROJECT	, 1107.1				10. SIZE MO TYPE OF BIT S. S. 15 L.D., BIE 3 7/8"					
Fort S	stewart	RCRA	Studies			LOTTION	DIOAN CLUM T HIT			
LOCATION (37548	84 E.	660942.85	MSI.						
-	cency			100000000000000000000000000000000000000	er AD2					
Pitts	ourgh	Testir	ng Laboratories			CATAKEN	O-=TUN==40	U-0-1U	***0	
HOLE NO. (As were as second still								(3)		
	HAME OF DRILLER					n cone se		ron		
Rober	Robert Prophet					OUND WAT	No. 0 (100)	TOB		
DIRECTION OF HOLE					-	1.1	/24/80	1/24/8	Section 1980	
ELYVERTICAL DINCLINED DEG. FROM VERT.					ATION 7	or or not	-			
THICKHESS	or over		•);		Description of the				-	
	THICKNESS OF OVERBURDEN DEPTH DRILLED INTO ROCK O'					PAPEET	On I I		-	
TOTAL DE			50'	7.2 3.0		Pil	ut Mress	41/		
	T		SI AMERICATION OF WATER	IAL 3	1 COME	BOX On	hen	19-3		
ELEVATION	DEPTH	LEGEND	(Description)		ERY	HO.	(Druine int	Lid-inie		
		c	SP 10 YR 2/1 black 11	00.50		1		Blows		
	-	•	medium sand with organ			1	loose, mois	t pu	shed	
	7	7	medium sand ofth organ	1.5'						
1		9		+	1				ţ	
		0	au 3 6 um 3/3 -2-1-2-1	0751					t	
	_ =	9	SM 7.5 YR 7/2 pinkish silty fine sand, poor	grey		2	very firm,	moist	26	
1	5	ii	silty fine sand, poor	5.0'			5			
		0	Sorred	5.5	1				1	
		0				1				
. 1		0	20 m 7/3							
	20	0	SM 10 YR 7/3 very pal			3	loose, moi	st	8	
* 5.2 . c	10	0	brown, slightly silty to medium sand, poorl	V SOTTE	d		Section of the section		-	
		1	to Beatam Sana, poort	, , , , , , , ,						
		Ĭ				1				
		LI	(3)						1	
	=	Y !	SM 2.5 Y 7/4 pale yel							
	15	l º	slightly silty fine t	0.0		4	firm, moist	t.	9	
	15	0	medium sand, poorly	sorted,						
	-	0	picking up clay at bo							
	-	9		(17.5')					
	1									
	3-	•	SP 10 YR 8/2 white,				firm main	r	15	
	20_		medium sand, poorly	sorted	1	5	firm, moist		4.0	
	_				1		1			
				(22.5')					
	-	111	/ SM - SC 10 YR 6/8 br	ownish			1			
	-	1 9	yellow, clayey, silt			1	1			
	25	1 1	co medium sand	25.0		6	very loose	e, moist	Pushed	
	1	10								
	1				1					
		1			1					
	-	1 1	The second secon		1					
	-	11 1	SM 5 Y 6/1 grey, sil		1	7	firm, noi	s r	72	
1	30	111	micaceous fine sand			1	1	T. 31		
	1 5	71!	slight amount of cla							
	1 =	117	* 7	(32.5)					

DRILLING LOC	(Cont Sheet)	64.4'			Hole No. SC-BZ
PORT ST	wart RCRA Studies	FORE	Stevar	r GA	SHEET 2 OF 2 SHEETS
(LEVATION DEFT	UGINO CLASSINGATE	or of materials	-	SAMPLE MO.	
35. 40.	SM 5 Y 7/1 slightly silt fine sand SM5 Y 7/1 li slightly silt fine sand SP - SM 5 Y 7/2	micaceous fine 37.0' light grey, y micaceous		8 9	hard, moist 50/0. difficult drilling hard, moist 50/0. difficult drilling hard, moist 50/0. difficult drilling hard, moist 50/0. difficult drilling

		Torv	310-	IMSTALL!	HOITA			3444	1
DRILLI	HG LOG	1000	outh Atlantic	Fort	Steva	rt. CA		0.2	SHEETS
T T S LONG		1		10. 31ZE	AHO TYPE	OF NIT !	S.S. 15" I.D	., Sit	3 7/8"
Fort	Stewart	RCRA	Studies	II. BATU	- FOX YC	FAXLIGH	JHOAH LIBH - FO	_	
LOCATION	Camera	- 31-0	661144.17	MS MANU	L	ma peac	HATIOH OF DHILL		
DAILLING A	CEHCY		200		ker AD				
Pitts	burgh Te:	stin	g Laboratory	I), TOTA	L HO. OF		0 YUN - 40	U O+ +	TUR- 40
HOLE HO. 1	A		SC-B3	BUND	CH 3AMP	ES TARE	*! 11	:	**
HAME OF O	MILLER		: 30 03			- CONE B		O.D.	
Rober	Robert Prophet						TER 8.58' AT		
LDINECTION	OF HOLE			IL DATE	HOLE	1000		1-24-8	
(Ventic	* INC	HED	044. FROM VERT.	17 51 54	ATION TO	P OF HOL			
THICKHESS	OF OVERBU	HOCH					FOR BORING		
DEPTH DA			0'			INSPECT			
. TOTAL DE			50'	1		RY	he hat in	644	/
		T	CLASSIFICATION OF MATERIA	u	1 COME		nex	ARKS	
ELEVATION	DEPTH LEG	EHO	(D-copried)		EAY	HO.	(Druine in ()	- 10-19-	licari
	- L	•	SP-SM 5 YR 6/6, 5 YR /	71.	-	1		Blo	ous/ft
	7 9	9	mixed light grey reddi			1	loose, mois		oushed
1	7	9	yellow silty fine to m						
	11	+		2.5')					
		9	CU 2 6 V 7/6	lightl	,				~~
	· - •		SM 2.5 Y 7/6 yellow, s silty fine sand	TIGHT	(2	loose, mois	t	29
1	7	0	Sitty Time Samo						
	7 9								
		0							
	10					1			
10	1	0	SM 2.5 Y 8/2 white, sl	ightly		lana mois		18	
1	10	. 1	silty fine sand			3	loose, mois	10150	10
	= 1		-			1			
	7 8	, Ì							
		0							
		ĭ	SN 10 YR 7/3 very pale	e brown	4				
	15		silty fine sand		1	<i>L</i> ₊	firm, mois	E.	21
		Ĩ	The second of th						
	- ·								
		9							
	1 7 9	1	5V 10 1m 612 3 1		1				
	30 7	9	SM 10 YR 6/3 pale brown silty fine to medium			5	firm, mois	r	3
	20	•	poorly sorted	sand,	1		1.550.00		
		9							
	1	0	(22.5')	1				
		9			1				
		00	SP-SM 5 Y 8/2 white,						54/0.5
	25-	•	slightly clayey, silt	y fine		6	firm, mois	C	34/0.3
1	1		sand	77 51.					
	1 7	••		27.5')					
1		-							
			SM 5 Y 6/2 light oliv	e grey			1		
	30	1	slightly silty fine s			7	hard, comp		
		1					moist, dif	ticul	C.
		īl		32.5		1	drilling		
			1		-15				

PAGE A-34

DRILLING	LOG (Cont S	Sheet) Miralow for or por	62.6			Hole No.	SC-83
			ma States				Cr 2 shells
F	ort Stewart	RCRA Studies	Fort Steva		1.0x 0.1	*6	MARKS
(LEVAIIO+	DENH REIMO	CLASSIFICATION OF		RECOV.	SAMPLE NO.	IDalles I.m.	mare land depend of
	b c	d		c	(
	=		_				
			32.5'				
	1	1					
	1 1	SC 5 Y 6/1 grey,	slightly				
	35 - 9	silty, clayey f	ine sand		8	hard, moise difficult	t 29
	1 1					difficult (attiting
	1 9		(37.5')		1		
	- 100	· ·			1		
	= 40	SP-SM 5 Y 5/1 gre	ey, very			hard .	50/0.8
	40	slightly clayey	micaceous		9	hard, mois compacted,	
	700	silty fine sand				drilling	
	7 00		(42.5')				
ľ.	- 9						
	3 8	SC 5 Y 7/2 light	grey, very		10	dense com	pacted 50/0.8
	45	slightly silty c micaceous fine t	layey	3	10	moist, dif	
	3 %	mcaceous Tille c	0 mcd20m 3			drilling	
	1 7	SM SSS Y 6/1 grey,	very slight	1	1		
	1 7	silty clayey mic	aceous fine	1		dense, con	mpacted, moist
771.	1 7	to medium sand			11	difficult	drilling 39
	50 -	1			1	1	
	1 =			1	i:		
1	1 -3				1		
	1 3	7					
	untini						
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	=					1	
				2.0		1	
	1 3						
1							
1	3						
						1	

LTIANIA	SEC.			_			Hele Me.				
DRILL	ING LO	G OIV	South Atlantic	For		rt, CA		or 2 she			
TAOJECT				10. 31ZE	MO TYPE	OF BIT	S.S. 14" I.D.	3ir 3 2	/ 0		
FORE	Stevan	TE RCRA	Studies	MS	IL FOR EL	KAYLOH	ZHOAH LLUH - MILL	3 11	0		
LOCATION	18417	13 E.	661633.71	1000	12 MANUFACTURER'S DESIGNATION OF DAILL						
DRU LING	AGENCY				ker AD2						
Picts	Pittsburgh Testing Laboratories					OVER-	11	UMDISTURS	€0		
			SC-B4	IA TOT	AL HUMBE	n CONE D	Oxe3				
L HAME OF		alsas		-		10UHO WA		ОВ			
Robel	Robert Prophet					1 .T					
			040. FROM VER	Y. IL OAT		or or not	-25-80	1-25-80			
THICKHES	s or ove	MBUMOCH		-			ron boning				
. DEPTH DA			0'	1.00		HIPECT	1		1		
. TOTAL DE			50'	CHAIR TOWNS		R	Sut May	144/			
ELEVATION	DEPTH		CLASSIFICATION OF WATER	טאוו	1 COME RECOV- CHY	BOX OR SAMPLE HO.	(Divine in	MKS A	-1		
•		•	SP 10 YR 7/2 light gr	rey.	-		Name of the second	Blows	/fr		
		•	slightly silty fine to sand, poorly sorted			1	loose, moist	pushe			
	5—	•	SP 10 YR 8/2 white, s silty fine to medium poorly sorted		,	2	firm, moist		14		
÷	10		SM-SC 2.5 Y 7/2 ligh reddish brown streak clayey, silty fine s	.s		3	stiff, mois	τ	12		
	15 -		SM 2.5 Y 7/2 light g very slightly clayey micaceous silty fine	7		4	soft, moist		8		
	20	•	SM 5 Y 4/2 dark grey slightly clayey mica silty fine sand			5	firm, moist		_3		
	25 —		SC 5 Y 4/1 dark gremicaceous fine sand very slight amount of	y, claye	-	6	very soft	, moist	1		
	30 —		SC. 5 Y 5/2 olive gr clayey micaceous fi	ne sand		7	hard, ceme	nted, <u>50</u> /	0.8		
		/		(77 51)			1				

DRILLING LOG South Atlantic Fort Stewart, GA	3HEET 1 or 2 3HEETS							
10. SIZE AND TYPE OF BIT S. S.	4" I.D., Bit 3 7/8"							
Fort Stewart RCRA Studies 11. DAYON TON ELEVATION SHOWN	100 2 200							
LOCATION (Candings of States) MSI.								
N. 0002.415	Acker AD2							
Pittsburgh Testing Laboratories 12 Torac no. or over 1000								
HOLE HO. (As shared on desired IIII-) SC-BS	10 1							
HAME OF DHILLER								
Robert Prophet	.83' ATOB							
DIRECTION OF HOLE	2-6-80							
17. ELEVATION TOP OF HOLE	51.7'							
THICKHESS OF OVERBUROCH	ONING 1							
DEPTH DRILLED INTO ROCK O' 13. SIGNATURE OF INSPECTOR 1	11							
TOTAL DEPTH OF HOLE 50' Ruby	Millou							
ENY HO.	יות יות ביל וו נין אווים וויים ווי							
SP 10 VP 5/2 arouich brown	se moist Blous/ft							
slightly silty fine sand,	se, moist Blows/ft —pushed							
poorly sorted								
SP 10 YR 7/1 light grey,	se, moist 31							
J Silginity Silley Fine	odor present							
o poorly sorted	i odor present							
7.75'								
SC 2.5 Y 6/4; 2.5 Y 7/2								
mixed light grey, light 3 st	ff, moist 15							
yellowish brown, very								
slightly silty clayey fine								
12.5								
SM 10 YR 8/1; 5 Y 6/2.								
mixed unite and light olive 4 sh	elby tube Pushed							
grey, silty fine sand	-							
1 - 111								
☐ (17.5°)								
17 Y								
	ft, moist 4							
20————————————————————————————————————	archine a division and a second a second and							
24.0'								
ML 5 Y 4/1 grey very 6	ry soft, moist 1							
25 slightly clayey very fine 6	ty sore, morse _							
sandy silt								
27.5'								
∃ SM. 5 Y 5/2 olive grey 7 vo	ery stiff, moist 24							
30 slightly silty fine sand								
· [] • []								
1 ☐ [•]								
FCT (01)	nd Engineering 1982							

~ MILLIUM ...

--MILLINGS ... DRILLING LOG (Cont Sheet) Weston for or our Hole No. SC-BS 51.7' or 2 seems malattation DHOT Fort Stewart, CA Fort Stewart RCRA Studies (Dulling the water law Japas of RECOV. SAMPLE CLASSIFICATION OF MATERIALS MCINO DEFTH MOHAVILI (D.w.,p. --) SM 5 Y 6/1 grey slightly very stiff, moist 30 8 silty fine sand SM 5 Y 5/2 olive grey 42 9 hard, moist slightly silty clayey fine 42.0" SP-SM 5 Y 5/2 olive grey hard, moist 10 silty micaceous medium to difficult drilling coarse sand 47.0' SC-SM 5 Y 7/2 light grey 50/0.33 hard, moist, 11 clayey, silty fine to difficult drilling medium sand

> FST-001 PAGE A-38

H-I- H-. or 2 sheets INSTALLATION DRILLING LOG Fort Stewart South Atlantic 10. SITE AND TYPE OF MITS 15" 1.U., BIE 3 7/8" II. BATUL YOU ECEVATION SHOWN (TON _ LIST) Fort Stewart RCRA Studies LOCATION (C. N. 687382.17 12 MANUFACTURER'S DESIGNATION OF DAILL Acker AD2 A DRILLING AGENCY Pittsburgh Testing Labortories 10-14-40 BUNDEN SAMPLES TAKEN! HOLE HO. (A- ---- SC-BG IL TOTAL HUMBER COME BOXES 1 HAME OF DRILLER 12 CLEVATION GROUND WATER 7.92' ATOB Robert Prophet DETARTED - DIMECTION OF HOLE IL DATE HOLE 1-30-80 1-28-80 MIVERTICAL DIMCLINED_ 17. ELEVATION TOP OF HOLE 71.8' 7. THICKHESS OF OVERBURDEN IS. TOTAL COME MECOVERY FOR BORING . DEPTH DRILLED INTO MOCK 0' 13. SIGNATURE OF INSPECTION HARACLE 50' . TOTAL DEPTH OF HOLE BON ON SAMPLE HO. CLASSIFICATION OF MATERIALS ELEVATION DEPTH LEGENO blows/fc SP-SM 10 YR 7/2, 10 YR 7/6 loose, moist 00 pushed mixed yellow, light grey very slightly clayey silty fine sand SP-SM 2.5 Y 5/4, 10 YR 5/1, loose, moist pushed 2 mixed grey; light olive brown, very slightly clayey silty fine sand, poorly sorted (3) No sample taken, solid waste cell SP 2.5 Y 7/4 pale yellow, very firm, moist 24 4 slightly silty fine sand foul odor SP 2.5 Y 7/4 pale yellow, pushed, firm, moist slightly silty medium to 5 foul odor coarse sand SP 2.5 Y 7/2 light grey, very loose, moist slightly silty fine sand, no odor poorly sorted 27.5' SM 2.5 Y 8/2 white, very 7 hard, moist slightly clayey micaceous

____32.5

FST-001 PAGE A-39 silty very fine sand

Source: Environmental Science and Engineering 1982

difficult drilling

ILLING	roe (Cont S	heet) 100 00 00 00 71.8'			Hole No. SC-R6
121			PHILATION	621 2		>-tr1 2
Fort	Steva	rt RCR	A Studies Fort S	tevari	c, CA	a S mus
			CASSIFICATION OF MATERIALS		BOX OR	REMARKS
EVALION	DEFIN	ILCINO	(D)	ERY	SAMPLE	(Drilling time mare law, depth of
	ь		d		1	
- 1		7				
	_	1	32.5'			
1						
		0				. 5
1		0	SM 2.5 Y 8/4 pale yellow			10
	35_	1 1	very slightly clayey		8	hard, moist, 75/0,33'
	33	TI	micaceous silty very fine sand			difficult drilling
	=	1 0	37.0'	ľ	1	,
	0	1 -1	37.0			
	_	6			1	
		1			1	
	-	7 /	SC 5 Y 5/2 olive grey, very		200	10
	40	1 0	slightly silty clayey		9	hard, moist 49
	=		micaceous fine sand			difficult drilling
		1/ /				!
	_	1			1	
	_	19	1			
	-	1 0	** * * * * * * * * * * * * * * * * * *		1	
	1	1/	SC 5 Y 5/1 grey, very	i	1,0	hard, moist 36
	45-	10/	slightly silty clayey		10	
		9	miczceous fine sand		1	difficult drilling
	-	0			1	
	_	1/ /			1	
	-	1	SC 5 Y 5/1 grey, very	1		hard, partially
	_	18	slightly silty clayey		1	
5	50	1 6	micaceous fine sand		11	cemented, moist 37
	30_		Thickeous Tille said	1		difficult drilling
	-	-1		1		
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	1	1	I	1	100	T.

							Hala Ha		
DRILL	ING LOG	0.,	South Atlantic	Fort	t Steva	rt. CA		SHEET 1	
I. PROJECT				-			.S. 15" 1.D.,	Bir 3 7	
Fort	Stevart	RCRA	Studies				THOUNG THE		10
LOCATION	IC	5+-		MS	SI.				
Locatio	n uncert	ain-	land filled and leveled	12	FACTURE	W.3 06316	HATION OF DAILL		
1 DAILLING	burgh To	stin	g Laboratories		cker AL		0 = 1 0 = 4 0	U-O TU	
A HOLE HO.	(A		~ m-!	BUNG	CH 3AMPL	ES TAKE		CHOITGE	
nı			SC-B7	A TOTA		n cone n	OXE3		
1 HAME OF	t Prophe	2.5		IS CLEV	ATION CA	0440 WA	TER 8.83' A	гов	
L DIRECTIO				IS. DATE					
13) ventu	CAL 1MC	LI~ 40	040. FROW VERT.					1-30-80	
7. THICKNES	1 OF OVER	unor:	w .	17. ELEV	ATION TO	P OF HO	unknown		
. DEPTH OF							r fon bonina		
			501	19. 3IGH	ATURE OF	1759	1 + U		
. TOTAL DE	PTH OF HO	CE			1 COME	F.P	sur min	My-	_
ELEVATION	DEPTH L	ECCHO	CLASSIFICATION OF WATERS	^4	ACCOV-	SAMPLE HO.	(Drutte 1-	77	
		•	4		-	1	- war	. Keliamine	~
	-					(1)		Blous	/ft
			7. 7.			(1)			
			No samples			(2)			
	5 —		solid waste cell			(2)			
	-								
	-		- c, +	8.5'			}		
7	1	•	SP 2.5 Y 7/2, 2.5 Y 7/	4		3	loose, moist		8
5	10	•	mixed light grey, whit		8 11 1				_
	1		yellow slightly silty	fine					
		•	sand, poorly sorted						
		•							
		•	SP 2.5 Y 8/4 pale yell	ou,					
	15		slightly silty fine sa			4	very loose,	moist	3
						1			
		٠,	1			1			
	1	-	CD 2 C V 0/2	i ah = 1					
	20 =	•	SP 2.5 Y 8/2 white, sl silty fine sand with v			5	loose, moist		7
1	20	•	slight amount of clay						-
		•	Jane Smooth of Casy						
		•							
1		•							
1		•	SP 5 Y 8/1 white, very			100	100000000000000000000000000000000000000		
	25	•	slightly silty fine sa	and		6	loose, moist	ħ.	2
1	-	•							
	-	•		28.0'	1				
	1 7	1 1	-	20.0	-				
	1 7	-	SP-SM 2.5 Y 7/1 pale	yellow					
1	30 —	00	silty fine sand			7	loose, moist	50/	0.2
			The same of the sa		1	1	lover half o	of county l	C
		00			1	1	partially co		

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DRILLING	LOG (Cont Si	heet)	Unknovn			Hole No. SC	
roxa.	Stevat	t RCRA	Studies	Fort Sta	evart,	GA		>+ee 2 >> 2 3+ees 2
ELEVATION	DEFTH	nciwo.	CLASSIFICATION OF	WATERIALS	7. CORE	SAMPLE NO.	(Drilling time, and	lan. depth of
		8	SC5 Y 8/2 light slightly silty mifine sand SC5 Y 5/1 grey, slightly silty clude sand SC5 Y 7/2 grey, slightly silty clude salty silty clude sand SC-SM 5 Y 7/1 lightly silty fine to med	very ayey and very ayey and 48.0'	еу	8 9 10 11	hard, moist, difficult dr very stiff, difficult dr partially cemented moidrilling partially cemented, moidrilling	moist 26 illing SO/O 83 st, difficu

I. PROJECT

DRILLING LOG

L LOCATION (Cardonales as Sirilar)

0141310-

Fort Stewart RCRA Studies

South Atlantic

3.0	I- H-	2.1-	
11-	- M-	200	- 152

10. SIZE AND TYPE OF MITS.S. 114" 1.D., BIT 3 7/8"

SHEET

or 2 SHEETS

COCALION	(7/7 7/ 5	661280 21					
DAILLING	6743.34 E.		1	er AD2	M) DENIG	CHATION OF DAILL	
Pitts	burgh Testir	ng Laboratories	13. TOTA	L HO. OF	over		**0
HOLE HO.	(A	SC-B8		CH JAHR		· · · · · · · · · · · · · · · · · · ·	
HAME OF	DHILLER			L HUMBE			
	t Prophet		IX ELEV	ATION CH			
DIRECTION	HOF HOLE	040, 700w VERT.	IL DATE	HOLE	*	-30-80	
. THICKHES	SOF OVERBUNDE	н		ATION TO			
	ILLED INTO MOCK					Y FOR BORING	1
	PTH OF HOLE	50'	19. SICH	ATURE OF	TEST.	"t Harmer.	
		CLASSIFICATION OF WATERIA	U	1 CORE	nox on	Menange	
	DEPTH LEGENO	(D-com)		ERY	HO.	(Drulling inter - or born drail	2-1
•	11	SM 10 YR 4/2, 2.5 Y 7/4		-	- 1	blov	s/ft
	7 9	mixed dark greyish brow			1	very loose,	shed
		pale yellow silty fine				moist	Jiica
	- 0	medium sand					
	- 4						
	1 - 7 1	SM 5 Y 5/2 olive grey,			2	very fine, moist	28
	5 - 1	fine to medium sand, po	oorly		-	ver, rine, borse	
	1 7 1	sorted					
	1 7 19		*1				
5	1 1 6	SM 10 YR 7/6 vellou, s	ilry				
S	1,0 7 61	fine to medium sand poor			3	firm, moist	15
			JLLY		1	rirm, morse	
		sorted					
	7 9						
		1			1		
	d	SM 5 Y 8/4 pale yellow	silry				
	15	fine to medium sand po			4	loose, moist	8
	13-1	sorted	or rj		1000		
	1 11	Sorced					
	1 - 1 1				1	1	
	1 1 9	SM 5 Y 8/4 pale yellow				l	
	20 -	silty fine to medium s			5	loose, moist	5
		poorly sorted					
	□ ↓	100117 301120			1	1	
	1 -11				1		
	1 -11					1	
	1 71	S1 2.5 Y 8/4 pale yell	ou				
	25	slightly silty, clayey,			6	very firm,	4
	-	micaceous fine sand, v				difficult drilling	
		agerly sessed					
		(27.	5')			1	
	-					1	
		SP 5 Y 5/1 grey very					
	30	slightly silty micaced	us		7	hard, partially	3
	1 = •	fine to medium sand				cemented, difficult	
	-		32.5			drilling	
Ř	1		35 . 3	t.	1	T.	

INSTALLATION

Fort Stewart, GA

FST-001 PAGE A-43

(/Zerozewania			V1310H	MATALL			H-I- H	SHEET	
	ING LO	S	outh Atlantic		Stewar			or 2	3455
I. PROJECT	Crown	r RCDA	Studies	10. 317	AMD TYPE	or nit	.S. 15" L.D.,	Bit 3	178
LOCATION				MS		LOTTION	THOMH (JUN - FIL))	
N. 68	6343.3	8 E.	662077.47			n's Dean	CHATION OF DAILL		
DAILLING				۸c	ker ADZ				
PILLS	burgh	Testin	g Laboratories		NE HO. OF		10-10-40	U-01	-
~ ni- ~			SC-B9					:	
T HAME OF	DAILLEA				AL HUMBE				
Rober	t Prop	het		IT SES	ATION CA	0.00	0.75 AI		
Myenti			044. FROM VERT.	IL DAT	CHOLE		-25-80	-25-80	0
				17. ELE	VATION TO	or or no	ce 69.8'		
7. THICKHES	s or ove	RBUROC					Y, FOR BORING		
. DEPTH OF	HILLED IN	TO MOCH			ATURE OF				
. TOTAL DE	PTH OF	HOLE	501			Kr	but they	MII	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA	·u	1 COME	BOX ON	(Date newle	143	
			(Description)		EAY	×0.	(District The	11 -10	learns)
		•	SP 10 YR 6/6 brownish y	ellou		1	very loose, d	ry BI	ous/
			slightly silty fine san				oily	medical desired	pusho
		•	poorly sorted	(3)				-	
	-	•							
	=	0	SP 2.5 Y 6/4 light yell	ovish					
	5_	•	brown, slightly silty f			2	loose, moist		9
1		•	sand, poorly sorted				oil present i	n mud	pit
	-	0							
		•							
**	=	0	SP 10 YR 2/2 very dark	brown					
2	=		very slightly silty fin		1	3	firm, moist		11
-	10		sand, poorly sorted			-	foul odor - o	ily	
	-	_						110	
		•							
		0							
		•	SP 10 YR 2/1 black silt	v		20			516001
	15	•	very fine sand, poorly	**		4	firm moist		21
		•					no odor or oi	.l pre	sent
		•	1	8.0'					
	-	•	1	0.0					
	100	1 0							
	20 =	4	SM 10 YR 6/2 light brou			5	stiff, moist		14
	20		grey clayey silty fine	sand					
	=	11							
		1							
	-	1 T							
		1	SM 10 YR 5/2 greyish br	our					
	25_	1	silty fine sand	Jell		6	stiff, moist		9
		•							
	_	-	2	7.0'					
	_								
	. =								
	30	لمل	SM-SP 10 YR 5/2 grevish			7	very loose, m	noist	1
	30	17	brown, silty fine sand,	0				05997455,550	(40
	-		poorly sorted						

a			hoet) 110 at the for or roll 69.81		201	Hole No. SC-39	
Fort	Stewar	t RCRA	Studies Fort Sto		7	O-2 3mg	m
MOITA	DEFIN	1101110	CASSIFICATION OF MATERIALS	ERY	SAMPLE NO.	(Dolling the marks for dep	h -/
	b	(ď	c	· · ·		
			32.5'				
	35		SG-SM 10 YR white, silty, clay micaceous very fine sand	, ey	8	hard, moist, oily	65
	=		(37.5')				
	40		SM 5 Y 6/3 pale olive, very slightly clayey silty micaceous fine sand		9	hard, moist, difficult drilling	44
	45		SM 5 Y 6/3 pale olive, very slightly clayey silty micaceous fine sand		10	hard, partially cemented, moist difficult drilling	54
	50-	80	SM-SC 5 Y 6/2 light olive grey very slightly clayey silty fine sand		11	hard, moist difficult drilling	54
			le.				

PPENDIX							H-1- H-2		
212327474			Court As love	Fort		rt. GA		34467	
	HC LOC	1	South Atlantic	N SALITON	S. S. S. S. S. S. S. S. S. S. S. S. S. S	3503.3		or	SHEETS
PROJECT		n.cn.	Saudias	10. 31ZE	TY KST	OF BITS	.S. 114" I.D.,	Bit 3	7/8"
	-		Studies	MSL					
N 68	36538.62	E.	662670.60		FACTURE	M 3 DENG	HATION OF DAILL		
DRILLING				7	er AD2				
Pirrs	ourch Te	stin	g Laboratories			OVER-		- U	U===0
HOLE HO.	A		SC-B10	BUAG	CH SAMPL	CS TAKE	11		
			- SC-B10			n cone B			
L HAME OF C				12 CLEV	ATION CH		7.83' ATO	В	
Rober	Prophe	: (*0
	~	LINKO	048. FROM VERT.	IL DATE	HOLE	1 2	-1-80	7-1-8	Ω
L'Avenue				17. ELEV	ATION TO	or or HOL	£ 68.6'		
THICKHES				In. TOT	L COME P	COVER	r non Boning		1
. DEPTH OR	LLED INTO	HOCK		19. SIGHATURE OF INTRECTOR ! . I					
. TOTAL DE	PTH OF HO		50			Kol	out Muco	Lu.	
			CLASSIFICATION OF MATERIA	U	1 COME	BOX On	ngtan	***	
ELEVATION	DEPTHILE	GENO	(Description)	1200	RECOV-	HO.	(Druine in the	·(iend of
		¢			•	'		0	
	\exists	•	SP 2.5 Y 7/2 light grey			1	loose, moist		ous/fr
	-	•	slightly clayey silty f	ine				t	ushed
		0	sand, poorly sorted	3.0'					
	1	1.1							
	-	1 9	SM 10 YR 4/3 brown to d			1	: 66:		9
	5	•	brown, silty very fine	sand		2	stiff, moist		3
	7	9				1			
		0	!			1			
		16				1			
da.	=	1					1		
		TI	SM 10 YR 7/3 pale brown	n,		3	very firm, m	OIST	25
Ċ	10	11	silty fine to medium sa	and,		1	very riem, un	0136	
		9	poorly sorted				1		
		9							
		0	19						
	-	0	SM 10 YR 8/4 very pale			1			
1	1.5	0	brown, silty fine to m			4	firm, moist		23
	15	II	The state of the s	CULUM					
	F	1	sand						
		•	1	7.5'					
	- /	15	1		1				
	=	10	SC 10 YR 6/1 grey clay	ev					
1	120 7	6		Cy		5	stiff, moist		5
	20	6	fine to medium sand			1	Jezez, morse		-
	1	1	2	1.5'	176	1			
	=	لما							
1		[]							
4	500	00	SP_SM 10 VR 6/2 light			1	1		

brownish very slightly

clayey micaceous fine to

coarse sand, poorly graded

SP-SM 5 Y 5/2 olive grey very slightly clayey, silty fine to coarse sand, poorly

32.5

sorted

FST-001 PAGE A-47 Source: Environmental Science and Engineering 1982

7

6

very firm, moist

very firm, moist difficult drilling

difficult drilling

			V1310=	INSTALL	ATION) HEET .
	ING LO	K	South Atlantic		Steva			OF 2 3HEFT
			N Studies			EVATION	2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Bit 3 7/8
N. (87186	.82 E.	. 662733.11	12 44	FACTURE	(M.3 067)	CHATION OF DAILL	
		1000	ng Laboratories		er AD2			
HOLE HO.	(A		SC-B11 -	BUNG	OCH JAHF	CES TAKE	8	1
1 HAME OF								
Rober	rt Pro			IZ CEC	VATION CA		7:30 111	
(C) ******			DEG. FROM VERY.	IL DATE	ANNEMS:			2-5-80"
7. THICKHES	s or ove	CABUROC	•		VATION TO		70.20	
. DEPTH DA		TO MOCK			ATURE OF		Y FOR BORING	
. TOTAL DE	PTH OF	HOLE	50	1		P,	But Hage	Mu -
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF WATERIA	u	1 COME RECOV- EMY	BOX ON SAMPLE NO.	MENA	AK3 C depended
	_	-				(1)	•	Blows/ft
	5		No samples taken solid ⊍aste cell	7.0'		(2)		
	10 —	• • • • • • •	SM 10 YR 6/8 brownish y very slightly clayey fito medium silty sand, poorly sorted			3	firm, moist	1.1.
	15	0 0	SM 5 Y 7/4, 5 Y 8/2 mix pale yellow and white, silty fine sand	xed 17.5')		4	shelby tube	pushed
	20	8 9 9 9	SP-SM 10 YR 7/1 light g very slightly clayey s fine sand			5	firm, moist	7
	25		SM 10 YR 7/2 light grey slightly clayeysilty fir medium sand		×	6	loose, moist	1
	30 —	00	SP-SM 10 YR 6/1 light positry micaceous fine to			7	firm, moist	9

PAGE A-48

ILLING	roe (Cont	heat) 100 or -out 70.26'			Hola No. SC-311
HCI	SEO. 12	r RCRA	Studies Fort St	cuarr	GA	>+tt1 2
Fort	Stenat	E RCIO			SOE OF	
MOITAV	DEFTH	ILCINO	CLASSIFICATION OF MATERIALS	RECOV.	SAMPLE	(Deilling time, water last, depth of
	ь		ď	ENY	NO.	weathering, one if meripening
•		-	3		· ·	
	=		_			
	_		(32.5')			
1	_		(32.37)	1		77
	_	1 +			1	
	_	•	SM 2.5 YR 7/4 pale yellow			
	35 —		slightly silty micaceous fine		8	hard, dry, 28/0.17'
	=	111	sand			cemented, difficult
	-	T!			1	drilling
		19		1	1	
		•				
	-	0	SM 5 Y 6/3 pale olive	1	1	
	40	11	slightly silty micaceous	1	9	hard, dry, 50/0.75'
	-	11	fine sand	1		partially cemented
	1 =	111				difficult drilling
		191		1		
	_	. 0		1		
	_ =	4	SM 5 Y 5/2 olive grey, very	1	1	1
	45-		slightly clayey silty		10	hard, dry, partially 42
	-	111	micaceous fine sand	1		cemented, difficult
	1 =	1 7 1		1	1	drilling
	1 =	1 9	1	1		
	-	9	1	1	1	1
	1 =	1 6	SM 5 Y 5/1 grey, very	1	1	
	50-	111	slightly clayey silty fine	1	11	hard, dry, 50/0.92'
	-	+	sand	1	4	partially cemented,
	1 -	1	56110	1	1	difficult drilling
	1 _	1		1		The state of the s
	-	5 (2)				
		1		1		
		1		1		
	-	+			1	
	1	1				i
	-	1				
	-	-				
	1 :	1		1		
	-	1				
		-				
		1				
		1		1		
	1	7	1		1	
	1	-				
		7				
					1	
		-				1
	1				1	1
	1					1
	-		3	1		

DRILL	ING LO		South Atlantic	FORE				3444 I
PROJECT			with attaile		Steva			or 2 sheets
			A Studies	II. BAT	TA NOW AL	TATION	S.S. 115" 1.D.	Bit 3 7/8"
N. (687631	.59 E	. 662875.47	MSL			CHATION OF CHILL	
DHILLING	ACCHCY	1			er AD2		CHATION OF CHILL	
PILLS			ng Laboratories		L HO. OF		0	
			SC-B12			71 10011	· •	1
HAME OF					L HUMBE		TEN U.U' ATO	II.
RODE	rt Pro					SEACHE DISTERNATION IN		
() vent			049, FROW VERT.	IL DATE	HOLE		2-5-80	2-5-80
THICKHES	3 or ove	CROUNCE	н	17. ELEV	ATION TO	or or HO	ce 67.02'	
DEPTHON	11110 1	TO ROCK	0'	I. TOY	L COME	CCOVER	Y JOH BONING	,
TOTAL DE			50"	19. 31CH	TURE OF	m3GC	1. + W-	5382 NO
CLEVATION	DEPTH	LEGENO	CLASSIFICATION OF WATERIA		1 COME	HOX ON	(Druling , Drul	nk31
•		<	,		CAY	но.	-wine (ie.	Meismien
			No samples taken solid waste cell			(1)		Blows/fr
	5					(2)		
		61		7.5'				
	10	0 0	SM 10 YR 7/1 grey silty to medium sand, poorly s with very slight amount clay	orted		3	firm, moist	20
	15 —	0	SP 10 YR 7/2 light grey slightly silty fine to medium sand			4	stiff, moist	12
	20 —	00000	SP-SH 2.5 Y 7/2, 10 R 8 mixed light grey and wh silty fine sand	7.5) //l		5	shelby tube	pushed
	25	8 8 8 8	SP-SM 10 YR 7/1 light g silty fine to medium sa poorly sorted	rey nd 7.5')	ē	6	loose, moist	9
	30	•	SP 10 YR 6/2 light brow grey, slightly silty fin coarse sand, very poorl sorted, with very sligh amount of clay	e to		7	loose, moist	13

	(Cont :	Shout) Haranow for or sold 67.02"			Hole No. SC-B12
Fort Stevan	T RCRA	Studies Fort	Stevar	t, CA	Sect. 5
TANION DELIN	nci+o	CLASSIFICATION OF MATERIALS	RECOV.	SAMPLE NO.	
35 — 40 — 50 —		SP 2.5 Y 6/2 light brownish grey, slightly silty fine sand SP 10 YR 6/2 light brownish grey slightly silty fine sand SP 2.5 Y 5/2 greyish brown slightly clayey, slightly silty fine to medium sand SP 2.5 Y 4/1 dark grey, silty fine to coarse sand, very poorly sorted		8 9 10	stiff, moist 11 very stiff, moist 20 hard, moist 50/0.92' difficult drilling very stiff, moist 27 difficult drilling

PENDIX 4	T8(C)			INSTALL	TIOH			- 31,-11 1 SHEET 1	
	00			Fort	Stewar	t. CA		OF 7 3HE	CT3
DRILLIN	IC LOC	So	uch Atlantic			OF NITO.	.S. 14 L.D	, Bit 3 11	8"
PROJECT				10. SIZE	LICK EL	VATION !	HOAH (JUH - F	m)	200
Fort SI	Court B	CRA S	tudies	MSL					
1 OCATION (·		FACTURE	K 3 0 C31 C	HATION OF DAIL		
1 588	197 78	F. bb	12979.40		cr AD2				
ORILLING AC	urch Tes	ting	Laboratories	13. TOT	L HO. OF	over-	10-14-40	U-0117U-	-40
HOLE HO. (A			- i -	BURG)CH 3AUCL	ES TAKEN	9		
MI			SC-B13	IL YOT		COME M	XC3	THE	
L HAME OF DE	ILLEM			IL ELE	ATION CA	OUND WAT	6.83°	ATOR	
Robert	Prophe	C				1.7.00	1110		
LDIMECTION	OF HOLE		044, FROM VE	T. IL DAT	E HOLE	1 2-	6-80	2-6-80	
ED VERTICA	*r 144Cr	IN KD _	044, 7704 74	17. 11	VATION TO	F OF HOL	z 55.3°		
	OF OVERBU	MOCH					TON BONING		9
		South Atlantic South Atlantic Property RCRA Studies Testing Laboratories SC-B13 Prophet FOURTH LEGEND SP 10 YR 6/1 gr. Slightly silty No samples take solid waste cell SM 5 Y 8/4 pal silty fine san graded			ATURE OF				
				1,7, 3,0		121	but Hre	e my	
. TOTAL DEP	TH OF HOL				1 COME	BOX OF	7 79	JANKS	
TI THE TION	DEPTH LE	CEND	(Dargerta)	ENIAG	ACCOV-	MO.	(Drolling then)	ta. In . I willen	7-1
ELEVATION	140		,			1		st blous	16.
•	•		SP 10 YR 6/1 grey, v	ery		1	loose, moi		
	=		slightly silty fine	sand				pus	hed
1	∃ •	•							
1	-	0			1		1		
1	7			6 01	1				
1		0		5.0'		(2)	}		
1	5	-i				(2)	1		
1									
1									
1		- 1	No samples taken			1			
1			solid waste cell		1		10		
		1				(3)	1		
35	10	1				1			
Î		1		12.5'		1			
	-	1							
1		1 . 1					1		
		0	72						
1		0	SM 5 Y 8/4 pale yel	TOO		4	very loos	e, moist	2
	15	0	silty fine sand, po	orly			foul odor	present	
1	1	1	graded		1	1	AND COUNTY OF STREET, IN	172	
1	1	T			1	+			
	1 -	19							
	-	9				1	1		
		0	SM 2.5 YR 8/2 silt	y fine		5	loose, mo	rist	2

(22.5')

(27.5')

32.5

SP 10 YR 7/3 very pale

poorly graded

poorly graded

brown fine to medium sand

SM 10 YR 6/1 grey silty medium to coarse sand.

FST-001 PAGE A-52 Source: Environmental Science and Engineering 1982

very loose, moist

loose, moist easy drilling

13

no odor

PRILLING CO	og (Co	nt 3	heat) ((trains for or mar	55.3'	-		Holo No. SC-I	313	
Fort Ste	שמדנ			Fort St				c 2 sm	(12
ELEVATION DE	PTH LLC	((DASSHICATION OF M	AICRIALS	T COPE RECOV. ERY	SAMPLE MO.	Drilling 11-1	- land depe	÷,-/
4			SM 5 Y 7/2 grey simicaceous fine sand SM 5 Y 6/2 light of very slightly claymicaceous fine sand SM 5 Y 5/1 grey very slightly clayey simicaceous fine sand SM 5 Y 5/2 dark grands slightly clayey, system	12.5' live grey ey silty d ry lty d	756300		stiff, moist difficult dri hard, partial cemented, moi difficult dri very stiff, m difficult dri very stiff, s difficult dri	lling ly st lling oist lling	13 53 23

:111....... Hole No. SC-B14 Fort Stevart, GA >-111 Fort Stewart RCRA Studies or 2 seees T CORE BOX OR REMARKS CLASSIFICATION OF MATERIALS DEFTH LECENO Dealling time water land depth of HOITAVILL 10-40-1 32.5' SM 10 YR 6/1 grey, very slightly clayey, silty fine very loose, moist to coarse sand with very easy drilling slight amount of gravel, very poorly sorted SM 5 YR 7/2 light grey, silty 9 hard, moist 32 fine to coarse sand with difficult drilling very slight amount of gravel, very poorly sorted SM 10 YR 5/1 grey silty fine 10 hard, moist 41 to medium sand with gravel, difficult drilling poorly sorted 0 SM 10 YR 7/2 light grey hard, moist 11 silty micaceous medium to 50/7" 50. coarse sand with slight difficult drilling amount of gravel

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SIMING	foe (Cont	heet)	Unknovn			Hole No. SC-315	2
			Studies	Fort Steva	ct, CA			2
MAYIOM	ости	regeno C	CASSIFICATION OF		Z (OFE E(COV.	SAMPLE NO.	(Drilling time, water land	dopok of hearing
•	=			(32.5')				
	35	•	SP 2.5 Y 7/6, 5 Y grey, yellow, silt sand, poorly sorted	y fine		8	loose, moist	6
	40		SM 5 Y 5/1 grey, : micaceous fine san			9	soft, moist	۵
	45		SM 5 Y 5/1 grey s micaceous fine sa	ilty nd	*	10	very stiff, mois difficult drilli	
÷-	50		SM 5 Y 7/2 light slightly clayey, micaceous fine to	silty		11	hard, partially cemented, moist difficult drilli	6 <u>1</u>
	55—	0 0 0	SM 5 Y 5/2 olive slightly clayey, micaceous fine to with very slight gravel	silty medium sand		12	hard, partially cemented, moist difficult drilli	60 .ng
	60_		SM 5 Y 7/1 light fine to medium sa sorted			13	firm, moist difficult drilli	<u>34</u>
	65_		SM 5 Y 6/1 grey : to medium sand w amount of coarse	ith slight		14	very firm, mois	<u>56</u>
	70_		SM 10 YR 6/1 gre medium to coarse slight amount of	sand with		15	very firm, mois	c 48

FORE SECURIT RCRA Studies FORE SECURIT, GA CHEVATION OF MATERIALS CHEVATION OF MATERIALS TOURS OF MATE	DRILLING	LOG	(Cont	Sheet) Ittenon tor or no	unknoun			Hole No. SC-B	
SP 2.5 Y 6/0 grey medium to coarse sand with slight amount of gravel SP 2.5 Y 5/0 grey very slightly silty fine to medium sand with very slight amount of gravel SN 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SN 2.5 Y 5/2 greyish brown silty fine to medium sand, very slight amount of gravel SN 2.5 Y 5/2 greyish brown silty fine to medium sand SN 2.5 Y 5/2 greyish brown silty fine to medium sand SN 3.5 Y 5/2 greyish brown silty fine to medium sand SN 5 Y 5/1 grey silty fine SN 5 Y 5/1 grey silty fine SN 5 Y 5/1 grey silty fine SN 5 Y 5/1 grey, silty fine SN 5 Y 6/1 grey, silty fine SN 5 Y 6/1 grey, silty fine					HAZIATE INDA	t, GA			
SP 2.5 Y 6/0 grey medium to coarse sand with slight amount of gravel SP 2.5 Y 5/0 grey very slight amount of gravel SP 2.5 Y 5/0 grey very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand				10.000		RECOV.	SAMPLE HO.	(Dalles ner vere	In Lopis
SP 2.5 Y 6/0 grey medium to coarse sand with slight amount of gravel SP 2.5 Y 5/0 grey very slightly silty fine to medium sand with very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine to medium sand		-							
SP 2.5 Y 6/0 grey medium to coarse sand with slight amount of gravel SP 2.5 Y 5/0 grey very slightly silty fine to medium sand with very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 6/2 light amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 3.5 Y 5/1 grey silty fine SM 5.7 S/1 grey, silty fine		_	1		72 5'				
SP 2.5 Y 6/0 grey medium to coarse sand with slight amount of gravel SP 2.5 Y 5/0 grey very slightly silty fine to medium sand with very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 3.5 Y 5/1 grey silty fine to medium sand SM 5.5 Y 5/1 grey silty fine to medium sand SM 5.7 S/1 grey silty fine to medium sand SM 5.7 S/1 grey silty fine to medium sand SM 5.7 S/1 grey silty fine to medium sand		-			12.5	i			
SP 2.5 Y 5/0 grey very slightly silty fine to medium sand with very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand 20 firm, moist		75 —	•	coarse sand with			16	very firm, moi	st <u>í</u>
slightly silty fine to medium sand with very slight amount of gravel SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine to medium sand		-			very				
SM 2.5 Y 6/2 light brownish grey silty fine to medium sand, very slight amount of gravel SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine SM 5 Y 6/1 grey, silty fine		80 —	•	slightly silty fi medium sand with	ne to very slight		17	very firm, moi	st
SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine SM 5 Y 6/1 grey, silty fine		-	7	SM 2.5 Y 6/2 ligh	nc brownish		10		
SM 2.5 Y 5/2 greyish brown silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine		85		sand, very slight gravel	to medium t amount of		18	firm, moist	
SM 5 Y 5/1 grey silty fine to medium sand SM 5 Y 6/1 grey, silty fine		90		SM 2.5 Y 5/2 gre			19	firm, moist	
SM 5 Y 6/1 grey, silty fine				SM 5 Y 5/1 grey	silty fine		20		
SM 5 Y 6/1 grey, silty fine to medium sand		95.—					20	firm, moist	
		100 —			silty fine		21	firm, moist	
		-							
		-							

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Hala Ha. SC-816

			V1310H	INSTALL				SHEET
	ING LO	~	South Atlantic		Stevat		e 11.11 t ts	OF 2 SHEET
Fort	Stevar	rt RCRA	Studies				3.5. 1 1 1.D.,	
LOCATION	(Carren	51-	663435.00	MSL				
N. DE			003.33.00	1	er AD2	איז סכזוכ	HATIOM OF DMILL	
Pitts	burgh	Testin	ng Laboratories	IL TOTA	L HO. OF	OVER-		U-0157U-040
ni			SC-B16				: 10	: 1
Rober	onicles				ATION CA			TOR
L DIRECTIO	A			IL DATE	. 40. 5		*** ICO	
₩ vente	CAL O	HCLIN & D					44.541	2-1-80
7. THICKHES	s or ove	-	•		ATION TO		r ron boning	
. DEFTH DE	HILLED IN	TO ROCK			ATURE OF		Λ° 1 1 1	
. TOTAL DE	PTH OF	HOLE	50'			R	but they	hu-
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA		T COME	SAMPLE HO.	(Drutte in the	H - I - I
•	-	-	SP 10 YR 4/2 dark grey	ish	-	<u>'</u>		blous/ft
	Ξ	•	brown silty fine sand,			1	loose, moist	pushed
	_	40	sorted	2.0'				
	=	00	CD CV 7 C VC //2 1					
	5 =	00	SP-SM 7.5 YR 4/2 dark 1 silty fine sand	roun		2	loose, moist	6
	-	00	Sircy rine sand			-	10030,0130	
	_	-		7.0'	ė (
	_							
je Je			SP 7.5 YR 3/2 dark brow	-m				
	10		silty fine sand			3	very stiff,	moist 26
	=	•		12.0'				
		17		12.0				
	=	19/						
	15	19	SC-SM 5 Y 6/2 light ol			4	firm, moist	5
	15	191	grey clayey, silty fin	e		1 "	TILE, WOISC	
	1 =	119						
	1 -	172						
			SC-SN 2.5 Y 7/2, 5 Y 6	/1				
	20	1/4	mixed light grey and g			5	shelby tube	pushe
	-	141	silty, clayey fine san	d				
	_=	11 1	(22.5')				
	-	+						
	_ =	1 •	SM 5 Y 6/1 grey clayey					
	25	9	silty very fine sand	26.5'		6	stiff, moist	1
	-	1 .		20.5				
	-							
	-	+-	CD CN S VD S/1					
l.	30		SP-SM 5 YR 5/1 grey ve slightly clayey, silty			7	stiff, moist	
	-	00	micaceous fine to medi				difficult dr	illing
I	-	100	sand (32.5.)				
F	ST-001	1			t mont = 1	Savar	l ce and Enginee	ring 1982

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RILLING	roe (Cont S	heet) " ttvalon for or nat	66.34	!! 		Hole No. SC-B16	
סאכו		0.00	c. 1	PESTALLATED			min ,	
Fort	Stewar	t RCRA	Studies	Fort Steva		100 OR	0 2	3m(1)
LEVATION	DEFIH	IEGENO	CLASSIFICATION OF		#ECOV.	SAMPLE NO.	10-11-4 11-1 long	
	ь	¢	d		•	f		
	=							
	_	TX	SM	(32.5')			- 5	
	=	1	SC 5H 5 /3 olive of	layey				
	35	1	silty micaceous fi			8	hard, moist difficult drillin	53
	Ξ	1/		37.5'				
	-	1						
	40_		SP-SM 5 Y 5/1 grey slightly clayey,			9	hard, partially	50/0.33
	-	00	micaceous fine sa				cemented, moist difficult drillin	
	_=	1.9		(42.5')			difficult diffin	6
	Ξ		SP 5 Y 5/3 olive	very				
	45-	•	slightly silty mi			10	hard, moist difficult drillin	34
	1 =		fine sand	(47.5')			difficult driffi.	ь
	_	8	1		1			
	50-	1	SC 5 Y 6/2 light very slightly sil	ty, clayey		11	A STATE OF THE STA	50/0.42
	30-	1	micaceous fine sa				difficult drillin	g
	-							
	-	1						
	1 3	1						
	-	1						
	-							
	1							
	-							
	-							
		-						
		1	12					
2		1						
	-		1			1		

ALL	FINDIA	4.5	7131Om	INSTALL.		-		Suret i
DRILL	ING LO	c	South Atlantic	A This is the control of	itewart	. (:)		or 2 meets
. PROJECT				10. 31 Z F.	**** TYPE	or mt	9"	
Fort :	Stevar	t RCRA	Studies		H FOATEC	FULTING	ווא בי מענון השניים	.)
LOCATION	03 76	E6595	16.77	MS1.	ractune	W. 2 D.C 210	MATION OF DHILL	
SHILLING	ACCHCY	20.773		STILL			or onice	
Paul	N_Cla			13. TOTA	L #0. 07	oven-	10-10-40	U-0111U-010
- HOLE HO.	٠		7X-MI					: 0
2 HAME OF					LHUMBE			
Paul	N. Cla			iz ccc	ATTON CH		TEN 5.83' @ 2	4 hours
(X) wante			D40. FROW VERT.	IS. DATE	HOLE	100	/22/80	1/24/80
				17. ELEV	ATION TO			181
7. THICKHES				10. TOTA	L COME	COVER	TON BONING	
. DEPTH DA			50'	19. SIGN	TUNE OF	14395FT	P" L A.	
. TOTAL DE	PTH OF	HOLE	2707	1		[N	my X Milery	
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF MATERIA	NG.	EAY	SAMPLE HO.	(Dining into	Il stanticard
	-	1	Buff to grey-medium, sl					
	=	1	clayey sand, slight amo					2.0'
		1	plant fragments upper a	tt.			5	7
	=	1						
	_ =	1		5.0'				
]]							J.
	1 =	1	Grey to brown-silty cla	ayey			1-1	[-]
	_	1	fine to medium sand, u	p to		1	Neat 4	1.1
	=	1	15% clay				Cement .	[4
492	10_	1						
	10	1						1)
	1 =	7						20
		-					[4]	-
	=	7		14.0'				
	15_	7				1	1	[-]
	-	7	Grey to brown-silty cl.	ayey	í			
] =	7	fine to medium sand					1-1
	-	7	less clay (+ 5%) than .	above		1	1.3	14
	-	7				1		[.]
	20_	7	•	200 507		1	1.1	11
	-	7		21.0			l	38.5
	1 2		Olive green sandy clay				Jentonite Gravel	40.5
	-	7	and clayey sand. Sand					- 41.5'
	-	1	fine to very fine grai		1.			= ::
	25_	7					Sure-Pack	= 3
	-	7						= [-]
	1 =	7						=
		7					ا الط	-1 46.5
i	-	7						
	30 -	1		30.0	1	1	D. W. W. W.	OT 10 1CM
1	30_	i			1	1		
	1 =					1		
1		\exists	1		1	1	1	

APPENDIA 4.3 DRILLING LOG (Cont Sheet) TO. 47' Hole No. TX-MI -STALLATION vitti 2 or 2 seems Fort Stepart RCRA Studies Fort Stevart, GA 7. CORE BOX OR
RECOV. SAMPLE
ERY MO Dolling inc. water law. depth of CASSIFICATION OF MATERIALS ILCHIO DEPTH NON (Dewerpose) d 35.0' Grey - medium to coarse sand with up to 10% clay 35 40 41.0' Grey to medium to coarse sand with up to 5% clay to 44 ft., up to 2% clay below 44 ft. 45 50

> FST-003 PAGE A-60

AP	PENDI	X 4.5					1101- 01	
DRILL	ING LO	-	South Atl	IMSTALL Come		- C1		or 2 sheers
PROJECT	MATTER STEELS		South Atlantic		AND TYPE		9	OF 2 SHEETS
FORE SE	cuart	RCRA S	itudies	II. BAYL	M FOA EL	EVATION	ביים מחדן השטהים	sE)
N760657	.51	659795	. 88			W 3 DE 310	SHATION OF DHIL	
DAILLING	AGENCY			SIP				
Paul N.				IL TOT	L HO. OF	OVER-	10.010.00	U-013TU-40
~ ni- ~			TX-M2 —	7.55	L HUMBE		: 0	: 0
Paul N.							TER 4.6' @	24 hrs
L DIRECTION			DEG. FROM VERT.	14 DATE	. HOLE		/31/80	2/4/80
					ATION TO	or or no	Le 74.13'	
7. THICKNES						AND COLUMN TO STATE OF	Y TON BONING	1
. DEPTH DA				19. SICH	ATURE OF	ושקנייוו	11 - 11	No.
. TOTAL DE	PTHOP	HOLE	50'	1		10	Jun XIII	istu-
ELEVATION	DEPTH	LEGEND	(Described)	A G	RECOV-	BOX OR SAMPLE HO.	(Drilling Ima)	E. Il alentiteans
	-	-	Buff to grey - fine to					
ĝ.	_	1	medium clayey sand					2.0'
	_ ==	1	The second secon					
	23	1	12					
	. =	1		5.0'			-	1
	5						1	
	2	}	Buff to grey - medium t	-0		İ	N	
	-	7	coarse clayey sand				Neat Cement	
	_		Coarse crayey sains				Cement.	1 14
	_	3		74		1		1 []
	10 -	+	49	01				1119
	-	1 12	*	11.0'				10
	=		Orange - coarse sand		1		1	
	_	1	occasional clayey beds				1	
	=	1	up to 1 ft. thick				1	
	-	1			e .		1	
	15	7				1	1	4 1.4
	=	1	1			1	1 1	
	_		1] [.1
		-			1	1	1 1	1 14
	-	-						1 11
	20 _				1		1	118.0'
	20	1		21.0'			Rentopite Gravel	bo o'
	-				1.		, tavel	29.8:
	_	7						1=11
	-	7	Orange - clayey fine	to			Sure-Pack]=[:]
			medium sand					1 = [1]
	25	-	1					1= 1
	-	- 9				1]= b, o:
						1		Y= 750.0.
	-							
	-	\exists						01 TO -CALE
1	-	7		30 01			B. ann	01 10 -CA1
F	30	<u> </u>		30.0	1	1		
	-							
	-							
1	1 2				1	1	1	

THORCT			Sheet) turation for or roat	INSTALLATION			Hole No. T.	X-212
	Stevar	t RCRA	Studies	Fort Sto	wart, G	٨		O 2 200177
VA∏ON	ь	((((((CLASSIFICATION OF	MATERIALS		SAMPLE NO.	(Drilling time w	AMKS The dipped of the dipped
	40		White, grey - gree 29.5 ft. to 50 ft interbedded fine fine to medium sat sandy clay. Bed 1 ft. to 3 ft.; i boundaries gradate	and and with thickness most				

APP	ENDI						Hole No	. TX-M3
DRILL	ING LO		South to be a	IMSTALL		722		344CEA [
PROJECT			South Atlantic		Stevar		9"	or 2 sheets
	011377	RCPA S	Studios		AND TYP		SHOWN (TITLE - NO	(1)
FORT SE				MSI.		ra-Suite ti (1741)		
1760527				12 MAN	PACTUR	CH. 3 DE310	SHATION OF DAILL	
			<u> </u>	STM				
Paul N.	(A		na uu-l	IL TOT	N HO. OF	OVER-	0=10=40	UMDISTUMBED
MI			TX-M3 -	-			: 0	: 0
HAME OF	DAILLER			IL TOT	*C HUMBE	M COME B	OXES	
Paul N.	Clau	son		IX SEE	VATION C	NOUND WA	TER 2.6' @ 20	4 hours
DIRECTION			048, FROW VERT.	IL DATE			/5/80	2/8/80
THICKHES	3 OF OV	FRRUADE	41	17. CLC	VATION T	OF OF HO		270700
. DEPTH DA				Is. TOT	AL CORE	RECOVER	Y FOR BORING	3
7 TO CO 9 TO 10 TO		7.7.1.2.1.3.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	50	19. SIGH	ATURE OF	INSPACT	9" LH	
. TOTAL DE	PTH OF	HOLE	30			Ko	my herre	21_
ELEVATION	ОЕРТН	LEGENO	CLASSIFICATION OF MATERIA	NG.	RECOV-	SAMPLE	(Drutted then -	ARKS
		c	2		3.	но.		ul II • I and I I cand
	-							
	=	1	Brown - medium sand, co.				(72.0'
	_	1	grades to light grey u				1	
	_	1	orange stringers below					
	_		Li ft.	4.0'			- 5	Final
	5	1	175-7	gete ti			1	
	_	1	White - clayey medium coarse sand, bed of fire				1.1	[-]
		1	sand near 5 ft.	7.0'			1	6.1
1			Sand hear off.	7.0			Neat	14
	_	1	Grey fine to medium sa				Cement	14
200	10	-	THE STATE OF THE S					[-,]
37	10	-		10.0'				
	_		4 -				1	21.
	_	1		a.e			4	1-1
	-	1	Orange to slightly whit	e			13	[7]
	_	1	coarse to medium sand,					1.7
	_	1	very slight amount of c					4
	15	-	(5%), variable vertical	TÀ			1.4	
	_	1					[.]	
1	2	1					1.1	1.1
	-	1					(1.4
	-	-		()			- 1	11
	20 =	1					_ [3	37.5'
	20	1					Bentonite	39.5'
	-	1		1			Gravel	39.5
	_	1					7	_ 40.5'
	-	1	3	24.0'	0.00			= i
	-	-		24.0			Sure-Pack	= (4)
	25 _	1						=[3]
	25	1 -						
	-	1	White - sandy clay; san	d fine	1			= 1:45.5'
	_	1	grades downward to silt	y clay			0.000	
	-	1	at 29 ft.	De 50				
	-	1					manu	OT TO +C.M.
	30 -	1		30.0'				
	JU							
	=	+						
	-	7	1		1	1		

DHO		sheet) T1.13	H-STALLATIO-	VERNING DE		Hole No. T.	אינו 2
VALION	TH LECEMO	CASSIFICATION O	MATERIALS	7. CORE RECOV. ERY	SAMPLE NO.	(Dolling time	CA 7 SMETTS WARES
	TH LIGHTO C	CASSIFICATION O	33.0' dy clay 38.0' e to medium sand beds of fine 46.0'	7. CORE	SAMPLE	(Dolling time	CO 7 SHEETS

DRILLING LOC South Atlantic FOTT Stewart, CA or 1 3me 10. SIZE AND TYPE OF BIT 9" 11. OATUM FOR ELEVATION SHOWN (TOH & MSL) N760717, 3R F659264, 50 ORILLING AGENCY Paul N. Clauson 12. HAME OF DRILLER Paul N. Clauson 13. TOTAL HOUSE CORE BOXES 14. DATE HOLE DVERTICAL DIRECTION OF HOLE 15. TOTAL DEPTH OF HOLE 50' See soil boring log TX-B4 10. SIZE AND TYPE OF BIT 9" 11. OATUM FOR ELEVATION SHOWN (TOH & MSL) NSL NSL NSL 12. MANUFACTURER'S DESIGNATION OF DRILL SIMCO 13. TOTAL HO. OF OVER. 13. TOTAL HOUSEN CORE BOXES 14. TOTAL HOUSEN CORE BOXES 15. ELEVATION GROUND WATER 17. ELEVATION TOF OF HOLE 17. SIGNATURE OF INSPECTOR 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR 19. SIGNATURE OF INSPECTOR 19. SIGNATURE OF INSPECTOR 10. SIZE AND TYPE OF BIT 9" 11. OATUM FOR ELEVATION OF POPE DATE 12. SIGNATURE OF BIT 9" 13. TOTAL CORE RECOVERY FOR BORING 15. SIGNATURE OF INSPECTOR 16. DOUBLE THE MILE OF TH	Hole No. TX-M4	FUNIX 4.3
SINCO A HOLE NO. (A- A-	F 5	DRILLING LOG South Atlantic
TOTAL DEPTH OF ILEGEHO See soil boring log TX-B4 II. OATUM FOR ELEVATION SHOWN (TBN & MSL) MSL MSL MSL MSL MSL MSL MSL		T SOUTH METANCIC
N760717 38 F659764 50 ORILLING AGENCY PAUL N. Clauson HOLE NO. (As about on deaths litted TX-M4 3. HANC OF ORILLER PAUL N. Clauson L. DIRECTION OF HOLE OVERTICAL INCLINED OVERTICAL INCLINED T. THICKNESS OF OVERBURDEN B. DEPTH DRILLED INTO ROCK O' S. TOTAL DEPTH OF HOLE SO' CLASSIFICATION OF MATERIALS CLASSIFICATION OF MATERIALS See soil boring log TX-B4 12. MANUFACTURER'S DESIGNATION OF DRILL SIMCO SI	11. BATUM FOR ELEVATION SHOWN (TON - MSL)	CATION (Construct of Station
SIMCO Paul N. Clauson A HOLE NO. (As about on washed Hills) TX-M4 TX		60717.38 E659264.50
TX-M4 IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL HUMBER CORE BOXES IN TOTAL DATE HOLE IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BORING IN TOTAL CORE RECOVERY FOR BOX OR RELARKS IN TOTAL CORE RECOVERY FOR BOX OR RECOVER	SIMCO	ILLING AGENCY
TX-M4 IL TOTAL HUMBER CORE BOXES IL LEVATION GROUND WATER 2.2' @ 24 hrs. LOIRECTION OF HOLE DVERTICAL DINCLINED OEG. FROM VERY. IL DATE HOLE 17. ELEVATION TOP OF HOLE 70.46' 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR LEEVATION DEPTH OF HOLE CLASSIFICATION OF MATERIALS ELEVATION DEPTH LEGEND CLASSIFICATION OF MATERIALS CLASSIFICATION OF MATERIALS See soil boring log TX-B4 IL TOTAL HUMBER CORE BOXES 12. COMPLETED 17. ELEVATION OF HOLE 70.46' 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR RELARKS (Drilling Imm. and with depth HOLE FAY SAMPLE FOR	BUNDEN SAMPLES TAKEN	LE NO. (As shown on showing IIII-)
Paul N. Clauson L. DIRECTION OF HOLE DVERTICAL DINCLINED DEG. FROM VERT. 1. ELEVATION GROUND WATER 2.2' @ 24 hrs. 1. COMPLETED 1. COMPLETED 1. COMPLETED 1. COMPLETED 1. COMPLETED 1. CLEVATION TOP OF HOLE 70.46' 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR A. MA. A. M. M. M. M. M. M. M. M. M. M. M. M. M.	. 0 : 0	1 111
E DIRECTION OF HOLE DVERTICAL DIRECTION OF HOLE TO SEE SOIL BOTING TO BOTTON 14. DATE HOLE 17. ELEVATION TOP OF HOLE 17. ELEVATION TOP OF HOLE 17. ELEVATION TOP OF HOLE 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR 10. TOTAL DEPTH OF HOLE 10. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR 10. TOTAL DEPTH OF HOLE 10. TOTAL CORE RECOVERY FOR BORING 10. TOTAL CORE RECOVERY FOR BORING 10. TOTAL CORE RECOVERY FOR BORING 10. TOTAL CORE RECOVERY FOR BORING 10. TOTAL CORE RECOVERY FOR BORING 11. TOTAL CORE RECOVERY FOR BORING 12. TOTAL CORE RECOVERY FOR BORING 13. TOTAL CORE RECOVERY FOR BORING 14. DATE HOLE 17. ELEVATION TOP OF HOLE 18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR 10. TOTAL CORE RECOVERY FOR BORING 10		
DVERTICAL DIRECTIONS DEG. FROM VERT. 12. DATE HOLE 17. ELEVATION TOP OF HOLE 10. LEVATION TOP OF HOLE 11. CORE RECOVERY FOR DORING 12. LEVATION DEPTH LEGEND 13. See Soil boring log TX-B4	2.2 ta 24 hrs.	
7. THICKNESS OF OVERBURDEN 8. DEPTH DRILLED INTO ROCK O' 9. TOTAL DEPTH OF HOLE SO' CLASSIFICATION OF MATERIALS CLASSIFICATION OF MATERIALS CLASSIFICATION OF MATERIALS RECOV. RECOV. ERY SAMPLE (Drilling limit inter blan depth NO. 1 C. I'Vignellicand 2.0' See soil boring log TX-B4	a. FROM VERT. 14 DATE HOLE 1/25/80 1/30/80	
See soil boring log TX-B4 13. SIGNATURE OF INSPECTOR A KAT MICHAEL 15. SIGNATURE OF INSPECTOR A KAT MICHAEL RECOVE BOX OF RELABICATION (Description) 15. SIGNATURE OF INSPECTOR A KAT MICHAEL RECOVE BOX OF RELABICATION (Description) 2.0'		ICKHESS OF OVERBURDER
ELEVATION DEPTH LEGEND CLASSIFICATION OF MATERIALS CLASSIFICATION OF MATE	· ·	PTH DRILLED INTO ROCK 0'
ELEVATION DEPTH LEGEND CLASSIFICATION OF MATERIALS I CORE BOX ON RECOVERY SAMPLE (Description) (Desc	P. V. + No.	A CONTRACTOR OF STANDARD CONTRACTOR OF STANDA
See soil boring log TX-B4	ON OF MATERIALS I CORE BOX OR REMARKS	CLASSIFICATION OF MATE
See soil boring log TX-B4		
Bentonites (41.5° Gravel 43.5° 44.5	Neat Cement Neat Cement Al.5 Gravel 43.5 44.5 Sure-Pack 49.5	See soil boring log T

Part of the same			A171714	INSTALL	ATTUM		11-41 # (144)	ISHEET .	
	ING LC	×	South Atlantic	For	Steva	rt, GA		or 2 sheets	
I, PROJECT		non.		10. 31ZE	AND TYPY	OF BLY	2.5" - SHOWN (TITH - MSL		1
FORE SE	(Comp	KLKA S	etudies	MSL	3= 10H [[LVXIION	SHOWN (TIIM & MSL	.)	
N761199		E65951	5.98	IZ MAN	UFACTURE	A. 3 DC31	CHATION OF DHILL		-
DAILLING				SIM	CO				
Paul N.	(A	- on ur		BURI	AL HO. OF	OVER-	D	0	7
1 HAME OF	2011 1 50		TX-0W1	IA TOT	AL HUMBE	n Cont e		. 0	\dashv
Paul N.					VATION C		Branch Co.		-
L DIRECTION				IL DAT		I ST A	ATEO 10	OHPLETED	+
DVERTIC		1CL 1 KD	DEG. FROM VERT.				/10/80	4/12/80	
7. THICKHES	s or ove	CABUADE	н		VATION TO	AU MA NOW	10.42		1
. DEPTH DA		NTO ROCK	0'	18. TOT	ATUME OF	RECOVER	Y FOR BORING		1
. TOTAL DE	PTH OF	HOLE	50	1,3,5,0,0	ATORE OF	The state of	I. I Mour	HIA -	
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF WATERIA	u	I COME	BOX OR	Reba	AKS	1
			(Description)		EAY	SAMPLE NO.	(Druling the line	· II · levilleand	
		-	•						+
		1							F
		1							
	-	}							
	_	1							
	5	1	Dark Brown - Silty fin	e sand	1		easy drillin	g, loss	
	_						of water til		
	-	1							
1	-	}							
13	10			10.0'					
		1			1				
			T 10						
	_	1	Tan/Orange - clayey fin medium sandy clay≈30%,						
	_		slight amounts of coars						
	. =		material	c.					F
	15	1		16.5'					
	-	1							
1		1			1				
		1	Orange - fine sandy sil	τ			easy drillin	g	
	_	1							
	20	1		21.0'					
	_			21.0					E
									-
		1	Grey - fine sandy clay-				difficult dr	illing.	F
	-	1	clayey sand - hard musc				hard, compac		
	25	}	present						-
		1							
		1							
	_	1							-
		1							F
	_	1							F
	30			30.0'					
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		1							
	-								
m DT	-	1							

FST-003 APPENDIX 4.5 Source: Environmental Science and Engineering 1982

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APP	ENDIX						Hol- Ho	CO-211
DRILL	ING LO	Company Company	V1310+	INSTACE				SHEET
PROJECT			South Atlantic			irt, CA		or 2 sheers
Fort St				II. BAY	וז מסו בינ	ב סי וווז ב סי וווז	13-13-4 (TTDU A	(1)
N754176		E60888		MS				
DAILLING	ACCHCY	: 0.1000	19-14	1	MCO	CH.7 DC710	CHATION OF DAILL	
Paul N.				-	AL HO. OF	OVER	10	Vm Ov v v
HOLE HO.			CO-M1	804	DEN ZVPL	LES TAKE	· 0	0
. HAME OF	DAILLEA					n cone ii		
Paul N.	Claws	ion		12 565	VATION C	NOUND WA		24" hrs.
⇔ ~~~~	· ~ -	~ C L I ~ 4 D	040, FROM VERT,	IL DAT		1 2	/11/80	2/13/80
THICKHES	300000	ABUAGE	•				151.27'	
DEPTH DA	ILLED IN	TO MOCK	0'			INSPECT	Y FOR BORING	1
. TOTAL DE	PTHOF	HOLE	50*	19. 310.4	ATONE OF	AI	but Mayor	Cor =
LEVATION	ОСРТН	LEGENO	CLASSIFICATION OF WATERIA		I COME RECOV- EMY	BOX OR SAMPLE	(Diving In	ARKS
		c	7		-	1		y manificano
ARRIVA	10		Light Grey - coarse slig clayey sand Purple - tough plastic of Below 15 ft. to 22 ft. s medium to coarse sand (10 to 30%)	13.0'			Neat (2.0'
	20			24.0	-			
	25		White — sandy clay, sand fine	d very 26.0°			Bentonite: Gravel	30.0'
	30		White to tusty brown - sandy clay, sand very f makes up less than 30% of samples				Sure-Pack	36.0

DRILLING	106 10	4.5	heet] (ITEATE) IOF OF FOR	,				
r+OHCI			131.27	Imstation			Holo No. (
Fort S	tevart	RCRA	Studies	Fort Steva	ert, CA			or 2 sects
AIIO1	b b	CIND	CLASSIFICATION OF		7. CORE RECOV ERY	SAMPLE NO.	(Deller to	B
		c	(Deuropean	33.0° cy fine to 35.0° ilty sandy	RECOV	SAMPLE NO.	(Deller to	ARKS.

APPE	NDIX_	45	V1310++	TIMSTACE	A 110m		noi- n	500 17	
DRILL	ING LO	0	South Atlantic		Stevar	t . (:A		or I sects	
PROJECT				10, 312 €	*****	o- m.	9.,	7.00	
FORT ST	coart	RCRA S	itudies			TATAL	THU H	?(1)	
N754755	01	E60889	17.65	MSL					
DRILLING			* *	SIN		H 2 06216	HATION OF DAIL		
Paul N.	Clavs	on	•	-	AL HO. OF	OVEH-	10	UMBILLUMBED	
HOLE HO.	(A - ~~ -		CO-M2	BUN	DCH 3AMP	LES TAKE	- 0	0	
L HAME OF	DHILLER			IL TOT		n cone i	oxe3		
Paul N.				12 616	VATION C	10000	TCH		
L DIRECTIO	H OF HOL	e		IL DATE HOLE 12/1/100 : 2/12/00					
- ventu	car ()	MCLIM 40	DEG. FROM VERT.			1	14/80	2/17/80	
THICKHES	s or ove	ROUNDE	4	17. ELE	VATION TO	OF OF HO	Le 136.97°		
DEPTH DA				-			Y FOR BORING		
. TOTAL DE			50.	19. 31GH	ATURE DE	INSTEGT.	in the		
. TOTAL DE	PIHOF	HOCE		1	1 CORE	no xoa	THAN A POOL	TAL.	
ELEVATION .	DEPTH	CEGEHO «	CLASSIFICATION OF MATERI	۸۵	ACCOV- ERY	SAMPLE HO.	(Delling tomal)		
	_		5	2 22					
		1	See soil boring log CC	J-DL				72.0'	
	_								
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	-	1				1	1:	1 1.	
	-						1		
	=	1					1		
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	_	-			1	1	1	1 1.1	
	=	7				10		1 11	
		1						37.5	
	_	1			1	1	Bentonite		
	-	4	1			1	Gravel	39.5	
		1				1		- 40.5'	
	-	1	1					1=14	
	-	1			1	1			
		4			}	1	Sure-Pack	1319	
	_	-	1		1	1		1=1	
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	1 2	-							
	1 2	7							
i e	-	-				1			

APPENDIX 4.5	DIVISION	IMSTALL	A 710-		1101-	SHEET 1			
DRILLING LOG	South Atlantic	Fort	Stewar	r GA		or 1 SHEETS			
PROJECT	THE RESIDENCE	10. 31ZE	10. SIZE AND TYPE OF BIT 9"						
Fort Stevart RCR	A Studies	II. OXY	11. OLTUM FOR ELEVATION SHOWN (TON MSL)						
N755318.55 E60	9187.01		MSL						
DAILLING AGENCY		SIMO		n , 0Cl					
Paul N. Clauson		IL TOT	N HO. OF	OVER-	0 = 1 U = = 0	U-0111U-40			
HOLE HO. (A- and on a	CO-H3			ES TAKE	: 0	: 0			
A HAME OF DRILLER			TA TOTAL HUMBER CORE BOXES						
Paul N. Clawson		iz ere	13 ELEVATION CHOUND WATER 3.25' @ 24 hrs.						
L DIRECTION OF HOLE		IA DAT	E HOLE		/18/80	2/21/80			
CANALICYT CHECK	DEG. FROM VE	17. ELE	VATION TO	or or not					
7. THICKHESS OF OVERBU	1004				FOR BORING	1			
. DEPTH DRILLED INTO A	ocx 0'			INSPEGT					
. TOTAL DEPTH OF HOLE	30 '			Ku	Prut Duc.	Mu/			
ELEVATION DEPTH LEG	CLASSIFICATION OF MATE	CHIALS	1 CORE RECOV- ERY	BOX OM SAMPLE HO.	(Deuting ramai)	C. Indianilicand			
10	Brown - clayey fine medium sand, 10 to a color changed to great 5 ft. Light grey - clayey sand, clay 20 to 30 fine to medium sand Light grey silty, sand top 2 ft. plastic Light grey-fine to a sand, clay less than light grey - clayey fine to coarse sand to 30% clay	fine 14.0' silty 19.5' ady clay 23.0' coarse 5% 26.0' silty			Neat Cement Bentonite Gravel	2.0°			

	1	T141		1101- 110		
Court At Laure	A STATE OF THE PARTY OF THE PAR		. GA		or I SHEETS	
mura el Curte				q.,	_	
Studies	MSL					
5.96	12 MANUFACTURER'S DESIGNATION OF DRILL					
	SIMCO					
nd (III -	TIL TOUR OF NO. OF CALLED					
CO-M4	14 TOTA	LHUMBER	COME BO			
					4 hrs.	
					COMPLETED	
0		SHOOL MADE AND ADDRESS OF THE ADDRES			2/25/80	
н	-			Committee of the Commit	,	
DEPTH DRILLED INTO ROCK 0'			INSPEGT	11 19	-	
50'			To			
CLASSIFICATION OF MATER	1443	1 CORE RECOV- ERY	BOX OM SAMPLE HO.	(D	c. If eignificand	
See soil boring log C	СО-В4			Neat Cement Bentonite Gravel	2.0'	
	Scudies 5.96 CO-M4 CO-M4 CO' CLASSIFICATION OF MATER (Description) See soil boring log (South Atlantic Fort 10. 312c A 11. 0ATU MSL SIMO SIMO SIMO 12. MAHUI 13. ELEV 17. ELEV 18. TOTA 19. 31GMA SO' CLASSIFICATION OF NATERIALS See soil boring log CO-B4	Scudies 10. SIZE AND TYPE 10. SIZE AND TYPE 11. OATUM FOR ECT MSL SIMCO 12. MANUFACTURES SIMCO 13. TOTAL HO. OF 14. TOTAL HUMBER 15. ELEVATION OR 16. DATE HOLE 17. ELEVATION TO 18. TOTAL CORE R 19. SIGNATURE OF SO' See soil boring log CO—B4	Scudies Studies 10. SIRE AND TYPE OF BIT 11. OATUM FOR CLEVATION MSL 12. MANUFACTUREN'S DESIGN SINCO SI	See soil boring log CO-B4 INSTALLATION FORE SECURITE, GA IN. SIZE AND TYPE OF BIT 9" IN. SATUM FOR ELEVATION SHOWN THEM — MS MSL STMCO 12. MANUFACTUREN'S DESIGNATION OF DRILL STMCO 13. YOYAL HOLO OF OVER. COTTURNED OF DRILL STATE OF BUNDON SAMPLES TAKEN 0 IN. TOTAL HUMBER CORE BOXES IN. ELEVATION GROUND VATER 4.1' @ 2 17. ELEVATION FOR MOLE 125.89' 18. YOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR RECOV. EASTIFICATION OF NATERIALS See Soil boring log CO-B4 Bentonited Gravel Sure-Pack Sure-Pack	

DRILLING LOG	DIVISION	INSTAL	LATION		LA COPTO HEIST	SHEET]	
	South Atlantic		ort Stewa	rt. CA		or I SHEETS	
PROJECT	Joden Herbiers	10 3171	AND TYPE	or nit	9.1		
Fort Stewart RCF	A Studies	11. 027	UM FOA EL	נמצגומא ;	MONH (TON M	(1)	
LOCATION (Coordinates	. Si - 1 - 1		MSL				
N687979.17 F66	1144.17			R. 2 DESIGN	HATION OF DAILL	÷.	
Paul N. Clauson			1CO	OVER	0-=7Un==0		
HOLE HO. (A	n ma 1111-1	807	TAL HO. OF	ES TAKEN	0 .	9	
	SC-M2	14. TO	TAL HUMBER	COME BO	oxe3		
HAME OF DRILLER		12 66	EVATION GR	OUND WAT	ER . 6.1' @	24 hrs.	
Paul N. Clauson				1 ar an		COMPLETED	
	IM40 04	a, FROM VERT.	TE HOLE	1 3	3/1/80 :	3/4/80	
Document Direction			EVATION TO	- 0 + 10	e 64.65'		
THICKHESS OF OVERBURDER			TAL CORE R	CCOVERY	FOR BORING		
DEPTH ORILLED INTO MOCK 0'			HATURE OF	MSPOCT	1 11-	la constant	
TOTAL DEPTH OF HOL	z 26.5°			Tol			
ELEVATION DEPTH LE	CI ASSIGNATION TO	IOH OF HATERIALS	DIY	BOX OR	(Deuting that -	HARKS IE. Uplandicand	
	•	1	-	-			
	Sec soil bot	ring log SC-B3			Neat Cement .	2.0'	

DRILLING LOG	South Atlantic		Stevar	t, GA		or 1 sheets		
PROJECT	South Atlantic			r, (.A		TOP SHEETS		
			AMD TYPE	OF BIT	9	1 3.000.13		
	tewart RCRA Studies				340 4 1711 - M	(L)		
OCATION (Comment	a. S	MSL						
N688276.58 E	622041.66		JFACTURE	H. 2 DESIG	MATION OF DAIL	L		
DAILLING ACCHCY	NAS.		SIMCO					
Paul N. Clauson	ti	12 707	DEH SAMPL	OVER-	10.110.40	0		
III- m	SC-M3		14 TOTAL HUMBER CONE BOXES					
HAME OF DAILLER			THE RESERVE TO SERVE	Total Control				
Paul N. Clauson	n	17 666	VATION CA		LIOWING	courtered		
DIRECTION OF HOLE		IL DAT	E HOLE	(1.00 to 1.00	/6/80	3/10/80		
OVENTICAL DIMEL	D40. PROU V		VATION TO		SUE FRENK	3/10/00		
. THICKHESS OF OVERBUROCH					FOR BORING			
DEPTH DRILLED INTO MOCK 0'			ATURE OF		DA / /			
TOTAL DEPTH OF HOL	ـد 27.0'			1	Prut Mus,	MIL		
LEVATION DEPTH LEG	51 15315151710H 05 H1	TERIALS	1 CORE	BOX OR SAMPLE HO.	(Parity of	LANGS		
• • •			•	'		•		
	Sec soil boring lo	og SC-BS			Neat Cement Bentonite Foravel Sure-Pack	2.0'		

DOLL 1	ING LO	c	1310-	Fort	Stevai	cr CA		05 1		
PROJECT			South Atlantic		71,0 9 9 C		911	or 1 sheets		
Fort Ste	cuart	RCRA S	tudies	" OXTUM FOR ELEVATION SHOWN (TON MSE)						
LOCATION	(Coordina	5+	1100)	MSL						
1688197	. 28	E66297	9.40	SINCO						
Paul N.	Clavs			IN TOTAL HO, OF OVER- IDISTURGED UNDISTURGED						
HOLE HO.	(A	on wart	and the control of th	BUNDEN SAMPLES TAKEN!						
HAME OF C	DHILLEM		SC-M4	13 ELEVATION CHOUND WATER +0.5' @ 24 hrs.						
Paul N.	Claws	on								
O VENTION			DEG. FROM VERT.	3/11/80 3/15/80						
. THICKHES	s or ove	RBUROER	4			P OF HOL				
OFPTH DAILLED INTO MOCK						INSPECT	OR I I	1		
The second second second	TOTAL DEPTH OF HOLE 23'					1 1 1 1 1	ut Muss	UV		
CLEVATION			CLASSIFICATION OF WATERS	۸۱۵	T COME RECOV- ERY	DOX OR	(Delling there -	1 lose don of		
•	ь	•			-			•		
Brown - changing to below 5 ft., clayey medium sand, clay i with depth, from 20% top to 60%	Brown - changing to gr below 5 ft., clayey fi medium sand, clay incr with depth, from 20% ne top to 60% Grey-plastic sticky si sandy clay	9.0°			Neat Cement	2.0'				
	20		Light grey - clayey f medium sand	ine to				13.5'		
	20_		Dark grey silty, sand clay				Bentonite	15.5'		
	25						Sure-Pack	21.5		

Comme w		To	31V131On				Hol- H	o. 50~a5			
	LING L	oc	South Atlantic	1,43	FALLATION C			SHEET 1	_		
i, enoices		100		10	Fort St.	T OF THE	67	or 7 346			
FORT S	H (Comple	RCRA	Studies	10.	DAYUM FOR	LEVITIO	H SHOWN (TON H	313			
N68703	18.91	E6640	075.21	1	MSI.						
DAILLING	ACENC!	Υ		12	12 MANUFACTURER'S DESIGNATION OF DAILL						
Paul N	. (11	son		13	SIMCO		C=+*U=+*O				
ni			SC-M5	-	MONOCH SYMPLES TAKEN!						
2 HAME OF	DHILLER	*	. SC-H)	14.	14 TOTAL HUMBER CORE BOXES						
Paul N	. Clau	son		12.	13. CLEVATION CHOUND VATER 4.5' @ 24 hrs.						
- OWECHE			040, 75		IL DATE HOLE						
THICKHE	33 OF OV	CABUADO	н	17. (LEVATION T			3/19/80			
. DEPTH DE	AILLED II	NTO ROCK	0'	10. 7	OTAL COME	ACCOVER	Y FOR BORING		_		
. TOTAL DE				19. 3	CHATUME O	HSPCC)	P* 1 1.		1		
			35.0'			- Pot	but Shegan	4 -			
e ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF	WAT DRIALS	RECOV-	HO.	(D. UILLE INT.	ARKS	,		
					1	1	3 (, , , , , , ,			
	-		Brown - clayey, r	medium to							
	-		coarse sand, grad	dual color		1					
	=		change to light g					2.0'			
			about 3 ft.	4.0			4	7			
	5								1		
	=		Grey, white - med	ium to							
	=		coarse sand, clay	content			-	7			
			varies to bottom	of hole	1		1	1.1	- 1		
	-	1					Neat 4	1-1	- 1		
	10_				1		Cement	[4]	1		
	10						,·	14	F		
		- 1					1.1	1.1	t		
- 1	-							الأ	ł		
1			*				1		1		
1						- 1	(1)	1.1	F		
1	15_				i	- 1	1:1		Þ		
1	_					1	[.]	14	1		
1	\exists	- 1			1	1		1.1	F		
		1			1 1		1.1				
	-	- 1				- 1	1.1	1-1			
	\exists						1.3	1. {	1		
	20				1 1				F		
1	-	1			1 1	1	1. 1	1.1			
1	\exists	- 1			1 1		[.]		F		
1	=	1				1	Bentonite -	25.5'	F		
1	\exists						Gravel	27.'5			
	-	- 1			1			28.5	E		
	25	. (Grey, white medium	n to coarse	1 1	1	13=		1		
	\exists		sand, varying amou	int of				3	F		
1			clay material			5	Sure-Pack =		E		
			co-cuto estenario del Calata (Calata Calata				11=		1		
						1			F		
1.	ь Н	1				1	C-IL-	£ 33.5°			
	30			30.0		1					
	\exists	1			1	1	Deuren 11 10	2			
1	\dashv	1									

	LOG	(Cont She	set) measure for c	78.53°			Hole No.	SC-MS
оист Го	rt Ste	wart RCR	A Studies		stewart.	CA		0 2 mes
Anon	регін Б	1EGL+D	CLASSINCATIO	d Of wallstace		SAMPLE MO	(1)-111-1 11-1 w	1 J.p.h -/
	35							

		Torv	9 Mary	INSTALL	A TION			JHCCI	T	
DRILL	ING LO	c s	South Atlantic			ort, CA		or 1 ;	meeT3	
, PROJECT					AND TYPE		2Qan (11)n = m31	7		
FORE SE				MSL		CANLIGH	,J (,), // (,) AG(
N686000		E66256				W. 2 DC21C	MATION OF DHILL	_		
DUILTING				SIM	ICO					
Paul N	Clavs	ion		BUNDER SAMPLES TAKEN!						
HI-			SC-116				. 0	0		
1 HAME OF	DAILLEA			13 ELEVATION GROUND WATER (1' 0 2/ 1-						
Paul N.	Claws	onn		IZ ELEV	ATION CA	LATA	0.1 6 2	4 hrs.		
- DIRECTION	H OF HOL	. 6		IL DATE	HOLE	11000000	/20/80	3/24/8		
- CAVERTIO	CAL	₩CLIH €0	DEG. FROM VERT.	17 51 51	VATION TO	or not				
7. THICKHES	s or ove	-	•	-			FOR BORING		-	
. DEPTH OF						inspach.			- 1	
. TOTAL DE	PTH OF	HOLE	30'			Koli		4		
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF MATERIA	مد	1 COME RECOV- EMY	BOX OA SAMPLE HO.	iding in a	Anks	~ A o /	
•		•					F	2.0		
	=	1	B b alaway sa	nd			1	,	1.90	
	=	1	Rust brown - clayey sa							
	_	1		4.0'				2:	2	
	=	1			1		1	1.1		
	5_	1		Les Managers			1.1	1.		
	=	1	Buff-light grey - sand	iy clay			Neat '	1.1		
	clayey sand, sand m						Cement .			
	_=	1	fine and makes up 30-	70Z	1		·	1-1-		
	=	1	of samples		1		1.1	1		
	_ =	1			1			10		
	10	-	1				(1		
	1 =	7	1							
	1 =	7						1.		
	-				1	1				
	=	1	1		1	1	1.			
	15_	1		16.0'	1			1		
	-			10.0		1		13		
	1 -	-	White-light grey - si	ltv.	1		1	1.		
		1	sandy clay, few thin		1			1		
	1	_	beds				Bentonite	13 19	.5'	
1					1		Cravel 1	100		
	20	-	1				araver :		.5'	
1	1	7			4		1 8	= 22	5'	
1	1	7	· ·	23.5'				= [
	-			23.3		1				
			1		1		Sure-Pack	=		
1	25 _	-	Fine to medium slight	ly				=	3 19409	
1	23 -	7	clayey sand, clay 5%				1	2	7.5	
	1	\exists		_			1			
	_			28.0'			1	-01 10 KA		
			Dark grey - silty san	ndv		1				
		\dashv	clay, small muscovite	2	}		very hard.	ary		
85	30 _	7	flakes		1	1				
	1	1			-					
2	4	-					E			

APPE	NDIX	4.5		reinen - C			11.1- 11			
	ING LO	- 10.00	15104	Fort Stewart, GA Or 2 sects						
	ING LO		South Atlantic	10 3175	ro rem	or mit	2.5"	100 75	HEETS	
FORE SE	evart	RCRA S	tudies	11. BATU	- FOR EL	HOLLYA	33 4 (TNU	32)		
N686551	. 35	E66517	6.50	MSI.	PACTURE	H 3 DE316	HATION OF DRIL	L		
OHILLING	AGENCY			SIMCO						
Paul N.	Clave		4 1111-1	1), TOTA	CH 3AMP	OVER-	10	0	- + 4 D	
MI			SC-041	14 707	HUMBE	n COST 11	0×53			
HAME OF C	DMILLER			14 TOTAL NUMBER CORE BOXES						
Pinl N	Claus	con		INTANTED ICOMPLETED						
- DIRECTION		HCL1H 40	DEG. FROM VERY.	4/13/80 4/15/80						
				17. ELEV	ATION TO	or or hou	e 75.54°			
7. THICKHES			0,				FOR BORING		1	
. DEPTH DA			50	19. SIGHA	TUME OF	1700	m t thus	411		
. TOTAL DE	PTH OF	HOLE	7/8/0		1 COME	BOX On	he	MARKS		
ELEVATION	DEPTH	LECENO	(Description)		RECOV-	HO.	(Dellling then to	- JI -lanille		
		•				1		0		
	=		Yellow orange - clayey medium to coarse sand	4.0'			easy drill	ing		
	10		Tan/yellow - medium to coarse sandy clay	14.0'			difficult	drilling		
	15		Light grey - clayey m to coarse sand	edium			easy dril	ling		
	25_		Light greyorange - cl medium to coarse sand							
	30_	- -	Tan - clayey medium coarse sand	31.0						

RILLING	roe (Cont SI	neet) hivation for or not				Hole No. SC-	1
FORCE	Stowar	r RCRA	Studies Fo	rt Stev	art. C	A		or 2 sectrs
MOHAV	ь	TCEMD C	CLASSIFICATION OF MATERIALS			SAMPLE NO.	(Dalling time, was	er loss. Jopeb of
	35 —		Dark grey-fine sandy s muscovite present	ilt. 39.0'			£.	
	45	-	Olive — fine sandy, si clay	lty			compacted, vo	
1.00	50							
					N.			45.0

APP	ENDIX	4.5					Hol- Ho	SC-	002	
DOLL	ING LO		115411	I TALL	Araum Stiewar	1 (2)		3466		
170000000000000000000000000000000000000	ING LO		outh Atlantic		AND TYPE			100	2 34667	
FORE SE	(Country	3	· tomal	MSL	w ron et	רפוניגעו	THOUGH (TITH L. AS			
N686407		E666290	0.03	SIM		H. 3 DE316	HATION OF BRILL			
Paul N	Claus	011		IL TOTA	L HO. OF	oven.	10-10-40	- U- O+		
HOLE HO.	1A		SC-0W2	BUAC	EH SAMPL	ES TAKE	": 0	1	0	
1 HAME OF	DHILLER		2C-0#5		C HUMBE					
Paul N.		on.		12 CFC	ATION CH	Deser Inne State	STATE OF THE STATE			
L DIRECTION	H OF HOL	c		4/16/80 4/17/80						
A *****	c*r 🔘,		DEG. FROM VERT.	17 51 51	ATION TO	1		.,.,	7 00	
7. THICKHES	s or ove	HOUHOE	4				Y FOR BORING			
. DEPTH DA	ILLED IN	TO MOCK		Annual Control of the	ATURE OF					
. TOTAL DE	PTH OF	HOLE	20.			Ka	but theas	us		
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF HATERI (Description)	۸۷	RECOV-	BOX ON SAMPLE HO.	(Diving in)	- 19-100	d-prh of	
•			light brown - silty fi	ne 2.0'			easy drillin	ng		
	5		Orange – clayey, fine medium sand	to			easy drillin	drilling		
	10		Tan - clayey, silty f			easy drilling				
	15_		light brown - clayey to medium sand with v slight amounts of coa	ery						
	20		brown - clayey fine medium sand with coases	16.0'			easy drilli	ng		
	25_		light brown/tan - cl fine to medium sand coarse sand; percent clay increasing	vich						
	30_		tan - fine to medium	sandy			difficult	irilli	ng	

	roc (Cont S	heet)	76.83*			Hole No. SC-ON2	
Fort	Stevar	t RCRA	Studies	Fort S			о 2 знепз	
VARION	DEFIN	IEGENO	QASSIFICATION OF	MATERIALS	RECOV.	SAMPLE NO.	(Dalling time, water law, depth,	-/
•	35	•	light/dark grey medium sandy, si Olive - very sli	36.5°	c	•	compacted, very hard	
*	50		clayey fine to muscov				difficult drilling	•
							45.0)'
3 h	-ST-001		Sou	urce. Environ	mental	Science	te and Engineering 1982	

		(1.0	(1310H	IIM31 ALL	ATION			Sucr 1		
DRILL	ING LOG		South Atlantic	Fort Stewart, GA Or 2 Success						
PROJECT							2.5"			
Fort St	CWATT 1	RCRA S	tudies	The state of the s	H FON ET	הפודגעו	1 HILL HADING	()		
LOCATION	1 Commen	71	ion	MSL						
N685632		E66649	5.87	12. MAHO	PACTURE	H. 2 OC210	HATION OF DAILL			
DHILLING	ACCHCY			SINCO						
Paul N.	Claus	on		13. TOTAL NO. OF OVER- DESTURBED UNDITIONAGE						
HOLE HO		on	a mi-1	BURDEN SAMPLES TAREN!						
			SC-0V3	IL TOTA	LHUMBE	n Cont D	O×E3			
HAME OF E				13 CLEV	ATION C	OUND WA	YCA			
Paul N.										
DIRECTION				IL DATE HOLE						
DVERTIC		CLIMED	D40. FROM VERT.	4/18/80 4/19/80						
The state of the s	MUSISTER TO THE			17. ELEV	ATION TO	or or hou	c 77.54'			
. THICKHES	s or over	BUNDER		IS. TOTAL COME RECOVERY FOR BORING						
. DEPTH DA	ILLED IN	TO ROCK	0'	19. SIGNATURE OF INSPECTOR M						
TOTAL DE	PTH OF H	OLE	65'	7		1 1 1	ut Lucis	Ш-		
. 10146 06	1				1 COME	BOX OR	, .	0003		
ELEVATION	DEPTH	LECENO	CLASSIFICATION OF MATERIA	^ L3	RECOV-	SAMPLE	(Delling Ima) -	Voss, depart of		
		100	1		ENY	но.		c. il miller		
•		·			•			• •		
	-					1				
1										
	-									
	-		grey buff, brown-claye	2 y						
			medium sand; clay 5-15			1				
			medium sand, cray 5 13	//-		1				
	5					1				
	-			7.0'		0				
- 1	1 -									
	-									
	-				1					
	-	1								
	1 -					1				
	10				1					
	10	9			1	1				
					l.	1				
					1					
	1 -					1				
			v 77 6	-1		1				
			buff - fine to medium							
			sand, clay 20-30%, co.	lor		1				
	15		white below 10 ft.			1				
	13		Diffe below to re.		1	1				
						1				
			1			1				
			1	15100 RE04			1			
	-		1	19.0'	1	1	1			
			1			1	1			
					1	1				
	20					1				
	20		The second of th		1	1				
			white - fine clayey s	and;	1	1				
			clay 20-30%, very sli		1	1				
			The second and the se		1	1	slight mud	loss		
	-		amounts of coarse gra		1			1033		
	-	1	few gravel sized angu	lar		1	20' - 25'			
		1	quartz grains below 2		1					
	- E				1		1			
	25	- 1	to 25 ft.		1	1	1			
	1 -			550 650	1	1	1			
	1 500			26.5'		1				
						1				
		1	Grey, red, brown, buf		1	1				
	-	1	clayey medium sand, f	eu	1	1				
	1 1	1	coarse angular grains		1	1				
		1	coatse angulat grains		1	1				
	30			30.0'	1	1	1			
	1		1 1000		1	1				
		1	1		1					
	-	1	1							
	1	1	1		1					
	7 00.]			16:	1	I many	1002		
FS'	T-001 -	1	Source: E	nviron	ental	Science	e and Enginee	ering 1982		

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Duo			(hoot) 11(*A160+ 10+ 0+ 10)1 77.54 1			Holo No. SC-0W3
Fort	Stevar	t RCRA	Studies Fort Stev	art,	CA.	SHEET 2
A004	ь	rtC(HD	CLASSHICATION OF MATERIALS (Discopress) d	7. CORE RECOV. ERY	SAMPLE NO.	
	35					2.0'
	40		45.5'			26.0
	50		Grey, red, brown, buff - large percentage very coarse and gravel size well rounded quartz grains			
	60		Dark grey - soft sandy clay. this grades into hard sandy clayey silt 59.5'			31.0'
	65_		Olive — sandy, clayey silt			very hard , difficult drilling

API	ENDI				-		Hal- Ho	SC-Ows
DRILL	ING LO		V1510-	IM3TAC			124	34561 I
PROJECT			South Atlantic		II SIM			or 2 sheet
Fort St	cuart	RCRA S	tudies				2.5"	(1)
LOCATION				MS				
N684987	7.98	E66610	8.05	12 MAG	HEVELON	CH. 7 OC71	CHATION OF DAILL	
Paul N.				2.1	rico			
			2.111-1	12 707	AL HO. OF	OVER-	10	
~ III - ~			SC-0W4		oca saur	CES INCE	0	: 0
A HAME OF	DAILLER	ia i	36 0.03	14 TOT	AL HUMBE	n cone o	OXES	
Paul N.				12 ELE	VATION C	MOUND WA	TER	
DINECTIO	H OF HO	LC		IS DAT	EHOLE	1 ** -	-740	COMPLETED
C) venti	CAL [INCLINED	DEG. FROM VER		20222		4/21/80	4/22/80
THICKNES	3 0r 0V	ERBURDER	4	17. ELE	VATION T	or or ho	ce 72.68'	
. DEPTH DE	1000	U.S. I					Y, FOR BORING	
			35.	19. SIGN	ATURC OF	INSPACT	Pr 1 11	
. TOTAL DE	PTHOP	HOLE				- KV	ut Theyer	44/
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF WATER	TIALS	1 CORE RECOV- ERY	SAMPLE HO.	(Delline ima) -	ARKS
	_		Dark brown - fine med	ium			easy drilli	ng
		1	sand	2.0		1 8		
	_				1	1		
	_	1				1		
	_	1	light brown arou	andu				
	5 -	1	light brown, grey - s clay, clayey sand, sa	The state of the s	1		easy drillin	n g
		7	medium to coarse	6.5'		1	ezsy crimin	ng
	_	1	medium to coatse	0.5				
	-							
Α.	-	1	greyish brown - alter	natine			difficult di	rilling
	_	1	between clay and sand				difficult of	girring
	10		sand fine to medium	9.5'	1			
	_	1	out the co meeting	7.5	4			
	_	1	ree - claves			1	42.652	
	, T	1	tan - clayey sand, sa				difficult di	rilling
	-	1	clay, sand is very f			1		
	_	1	percentage of clay a			1		
	15		50%	14.5'		1		
	_	1	tan - clayey, silty v	erv fin		1		
	-	i	sand, percentage of c					
	-	+ 1	way down from last sa			1		
	_			19.5'				
	20				1			
	17.	-						
	_	1						
		1						
	<u> </u>	1				1		
	=	1			1			
	25_		tan - same color but	much			loss of dri	lling fluid
	-	1	greater percentage of		1			
	-	1	coarse angular materi					
	-	-	gozar moter			1		
	-	-						
	_				1			
	30 -	+		31.0'				
	9.1			24.0		1		
	-				1			
		1			1	1	I.	

юна	(-5.	1 Sheet)		2.68			Hole No.	SCONG
Fort	Stewart RC	RA Studies	1	Fort Ste	20000000			מווייע
HORAY.	א ה א ה א ה א ה א ה א ה א ה א ה א ה א ה		(Disapose)	TERIALS		SAMPLE	(Dalling time	WYBEZ
	25	Sandy sil	- fine to	33.0	ERY C	20.	very soft, very hard, difficult d	easy drilling compacted, rilling 2.0'

APPI	NDIX		V1510m	lines	W 8777		Hai- Ho	2C-()M2			
DRILL	ING LO		South Atlantic	FOR		ert C		3			
I. PROJECT			ween meranere	FORE SECURITY GA OF 2 SHEETS							
Fort St	cuart	RCRA	Studies				2.5 1350 ، 770 س من1				
LOCATION				MSL			A A A A A A A A A A A A A A A A A A A	-			
Y684690	1.69	E6649	22.20	37755		H'S DESI	CHATION OF DRILL				
DAILLING				SIM							
Paul N.				13. TOT	AL HO. OF	OVER-	10-100	U-0131U-14	,		
~ III- ~	-0-0			BUA	OCH SAMP	LES TARE	CH . 0	0			
1 HAME OF	DHILLER		SC-0WS	IL TOT	AL HUMB C	n Conc	NOXE3				
Paul N.				13. ELEVATION GROUND WATER							
L DINECTIO	H OF HOL	. c		IS DAT		137	mT 10 10	OUF T . D	-		
(ventic		< r < C	D40, FROW VERY.	12 021	CHOLE		4/23/80	4/25/80			
7. THICKHES	1 OF OVE	Bougor	v	17. ELE	VATION TO	or no	ce 72.36'				
. DEPTH OR	SCHOOL SALE		SA SAN				Y FOR BORING		7		
CAT CATALOG THE SECRETARY			0	19. SICH	ATURE OF	INSPECT	for 1 1A				
. TOTAL DE	PTH OF	HOLE	35'		,	RA	WITKINDA	Α.			
ELEVATION .	DEPTH	LECENO	CLASSIFICATION OF WAT DRIA	ى	T CORE RECOV- ERY	SAMPLE HO.	iDivine in die	offs of some down of			
	_		Dark brown - fine to me	dium			easy drillin	0	1		
	50	1	sand	2.0'			easy drillin	ь	F		
	_								-		
		1	Dark brown-peacy fine to				easy drillin	g			
			medium sand	4.0'					t		
1	5		Pale yellow-clayey fine	to			easy drillin	£.	-		
	-		medium sand with coarse				,	5			
	-			6.5'							
			Orange-yellow - sandy (fine			difficult dr	illing	1		
			to medium) clay	8.5'				-	F		
				0.5			1				
	10								t		
									1		
									F		
	-		-						1		
									-		
1	15		light grey - fine sandy				easy drilling				
			clay; precentage of cla								
	-		increasing up to 18 ft.						1		
				10.01					F		
	-			18.0'					1		
1	20								E		
1			light grey - medium to						1		
	_		sandy clay, alternating	coarse					F		
	-		amounts of standard clay	or takes							
			coarse angular material						1		
	_		coolse angulat material						F		
1	25					i l					
	_		light grey - fine to me	dium							
]	_		sandy clay; percentage						1		
1	-		coarse material increas								
	_		with depth up to 30'	6							
1				55 kg c . mm					-		
	30 _			30.0'							
	_		dark grey - medium to co	oarse					1		
1	_		sandy silt, muscovice pr	esent					-		
1	-		TIT	The state of the s							

•ouci	LOG	(Con! 2	hoet)	72.36"			Hole No.	SC-01/5
	1	1	Studies CASSINICATION OF	FORE SECY	7. CORE	SOX OR	P(J	or 2 sheets
**************************************	ь	((CEND	/ <i>Disciple</i>		RECOV- ERY	NO.	(Dr.Hg 1	R R
		c		33.0*	(AY	NO.	very hard, drilling	K

APPENDIX 4.0 DRILLING LOG (Cont Sheet) Tures to the text Hole No. 50-049 17+31ALLA140+ **0#0 or 2 seems Fort Stewart RCRA Studies Fort Stewart, CA 1 Dulling in water loss depite of T CORE BOI OR PECOV SAMPLE (RY NO CASSIFICATION OF MATERIALS ITCINO DEPTH PECOV VATION 35.5 35 . Dark grey - slightly silty clayey medium to coarse sand Dark grey-clayey fine sandy very hard, difficult 40 silt drilling 2.0' 35.0' 40.0' anan -01 10 104

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	CUDIX	DIV	\$10m	INSTALL	ATION			SHEET 1		
DRILLI	HC LO		South Atlantic	Fort	Stewa	rt. CA		OF 2 SHEETS		
PROJECT			ASI ACTURE AC	10. SIZE	AND TYPE	or mit	2.5"			
Fort Sto	Trave	RCRA SI	udies		- FOR EL	COLLION	SHOWN (TON - M	IL)		
1685459	(Commen	E663601		MSI.						
MILLING A	SEHCY	500 300 1	.73	STMC0						
Paul N.	Claws	on		13. TOTA	L HO. OF	OVER-	01+104+40	UM013TUR640		
HOLE HO.	A		SC-0W7 -	9040	CH SAMPL	ES TAKE	*: 0	: 0		
HAME OF D			SC-047	IL TOTA	-	A COAC 8	OXE3			
Paul N.		on		IL CLEV	ATION CA	OUND WA	TCR			
DIRECTION	OF HOL	E		IL DATE	HOL F	1		COMPLETED		
CHARTIC	AL	HCLIM40	D46. FROM VERT		20032012		/28/80	4/29/80		
. THICKHESS	0.00	BOUBOCK		17. ELEV	ATION TO	or or no	ce 68.12'			
			0'	100000000000000000000000000000000000000	I STATE OF THE PARTY OF THE PAR		Y FOR BORING			
DEPTH DAI			35'	19. SICH	ATURE OF	IMSPOCT	U L A.4			
. TOTAL DE	PTHOP	HOLE	1,000			lack of	rutchegar	LI LIAKS		
ELEVATION	DEPTH	LEGENO	CLASSIFICATION OF WATER	טאו	RECOV-	SAMPLE HO.	(Druttes the .	depen of		
					EMY	1	- war	(p) 11 - 1 anstrum		
	_				41					
1	_	1	Tan - very slightly o	layey		1	1			
-	-	1	fine to medium sand	3.0		1				
	-					1				
	=	1				1		2 - 5054		
	5	1 1	dark brown very sligh	tly		1	slight loss	of drilling		
	572	1 1	clayey medium to coan				fluid			
	=		sand	7.0'		1		-2112		
			Tan-clayey medium to				difficult di	Lilling		
T	_	1 1	sand, about 40% clay	9.0'						
S.	w. 2		Orange-clayey medium	to	1	1	difficult di	rilling		
27	10	1	coarse sand	11.5'						
	_	1								
	=	-		584			1			
	_	1 1	Light grey-fine to me				1			
	-		sandy clay with very				1			
	15	-	amount of coarse ang	ular			1			
	-	7	material				1			
	-						1			
	-	1				1	1			
	-	+	Light grey - clayey	medium r	- 6	1				
1	1 -	-	coarse sand with ver			1				
	20 _	1	amount of angular gr	avel		1				
	1 :		angular gr			300				
		_			1					
1	-	-	light grey-clayey be	dium to	1.					
			coarse sand with ver		c					
1	25	=	amount of coarse man							
	23 -	1	amount of clay incre				1			
	1 .	1.		25.0'			1			
1		7		200		1				
	-	\exists	light grey-fine to me							
1	1		sandy clay, amount of	clay						
	30 _	7	increasing	30.0						
1	00 _	-					7	0.754		
ł			in it come fine to	2		1	very soft.	Gusy		
1		_	Dark grey-fine to med			1				
l I		= '	clayey silt, muscovin				drilling			

APPENDIX 4.5 RILLING LOG (Cont Shout) THE TOT OF THE Hole No. SC-0W7 68.12' MONIALIATION +OntCl Fort Stevart RCRA Studies 0 2 Fort Stewart, CA Delling inc. ware law depth of 7. CORE BOX OR RECOV. SAMPLE ERY MO CASSIFICATION OF MATERIALS NOIL DEPTH MCEND (D.) 32.5' hard , compacted, olive-slightly clayey fine difficult drilling sandy silt 35 __ 2.0' 30.0 35.0' DARROW HOT TO HOLLE

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				17				Hal- H-	. 4-23		
		-	15.0-						SHECT /		
CRILL				ATLANTIC	F	T. STE	WAKT	4 "	or / smeets		
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				PLANT	1		MSL				
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-	SAVA	JAIAH	DISTA	RICT			07(5)	10010000			
HOLL 40			a cret . 1	A-23	11. TOTAL NO. OF OVER. DISTURBED DIO-10-100 BUNDEN SAMPLES TAREN 3						
						VATION 64			PC		
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	THICKNESS OF OVERBURDEN OCPTH DRILLED INTO MOCK				10, 101	AL COME A	CCOVERY				
	TOTAL DEPTH OF HOLE 10.0'					El	ule	74. Dear	-		
ELEVATION				ASSIFICATION OF WATER		accom.	10X 04 3447LC	(Delles ton	. H alpottered		
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	7-			DAKK GREY AND BL IE SILTY SAND.	ACK	CEIF	1				
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FST-020

								Hole !	40. A-22				
	20000		1210-		INSTALL				SHEET /				
	ואכ נס	1 -		ATLANTIC	1	F. ST.	in AR	Ι	01/ 5-66	13			
				CONTROL	11 047	IN FOR EL	STATION	4" 11700	AJRER.	-			
WRIGH	TAA	F SE	WAGE	PLANT	MSC THE MANUFACTUREN'S OCCUPATION OF DAILL N.A.								
56	E P	LAN	4007										
DAILLING	ACENCY			a -									
MOLE 40.	FIDN	NAH	Dis	TRICT	11. 101	13. TOTAL NO. OF OVER. OSTUMBED UMOSTUMBED BURDEN SAMPLES TAKEN!							
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MAME OF C						VATION CA	The Application of the Control of th		0				
	T, W.	SCO	TT		-	West Libert	1		100-00100				
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THICKHES	THICKNESS OF OVERBURDER DEFTH ORILLED INTO ROCK TOTAL DEFTH OF HOLE /0,0'				10. 101	AL COME A	CCOVERY			*			
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V/210	HT A	AF S	CUTION CONTROL	10. 31	1 C AND TY	T 0 - 01	1/25-10 53 550			
			CHACE PLANT	10. SILE AND THE OF BIT /2-10 SALTSPOOL						
SE	E PLA	U		12. MANUFACTUREMES DESIGNATION OF DAILL						
				IT. MANUFACTUREMS DESIGNATION OF DRILL						
-	SAYAN	NAH	DISTRICT	711 70		ME-	45			
			CS-3		TAL NO. 00	LES TAN	O-TU-+CO			
HAME OF	DAILLEA			14. 10	TAL NUMB		6			
	7	.w. :	COTT		EVATION 6					
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G-4-1	· · · ·		0 0(6, -=0= +(=	T. 16. DA	TE HOLE		1600-16140			
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	-						14 FOR BORING			
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TOTAL B	LFTH OF	HOLE	25.5				M. Deaves			
EVATION	DEPTH	LEGEN	CLASSIFICATION OF WATER	IALS		leok on				
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LOC + 110-	IC-men.	fe-	dien)	12. WANUT ACTUMENT DESIGNATION OF DAILL N. A.							
SAIL LINE	E PL	AN									
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	1 A		A-21	11 TOTAL HUHREN CONE BOKES #							
MANE 01											
	T.W. SCOTT DIRECTION OF HOLE DIRECTION OF HOLE THICKNESS OF OVERBURDEN DEFTH ORILLEO INTO ACCK				VAT10- C		20.0	CO	4		
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FST-020

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FST-020

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APPENDIX 4.17

DRILLING LOG

PROJECT _	37-26-0127	DATE31 March 1987	
LOCATION -	Ft Stewart, GA	DRILLERS _Hoddinott, Smithso	on,
	FST-014	Maners	
DRILL RIG	Acker ADII	BORE HOLE 'BH 9	

DEPTH	SAMFLE TYPE BLOWS PER 6 IN	DESCRIPTION	REMARKS
		Brown (10yr4/3) medium to fine sand	
-	061	Yellowish brown (10yr5/8) medium to fine sand	(1)
_		Very pale brown (10yr3/3) medium sand	
5	062	Light gray (10yr7/2) medium sand	Water encountered @ 5'
-		ВОН	
-		ă.	063 is Quality Control
_	1		sample on the SP washing
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AEHA Form 130. 1 Nev 82

Replaces HSH8 form 18, 1 Jun 80, which will be used

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APPENDIX 4.17

DRILLING LOG

PROJECT -	37-26-0127	DATE31 March 1987
LOCATION -	Ft Stewart, GA	DRILLERSHoddinott, Smithson,
Section Control of the Control of th	FST-014	Maners
DRILL RIG	Acker ADII	BORE HOLE , BH 7

DEPTH	SAMPLE TYPE BLOWS PER 6 IN	DESCRIPTION	REMARKS
5	057	Black fine sand Yellow (10yr6/7) fine sand White (10yr8/2) fine sand Gray (10yr7/1) fine sand BOH	Water encountered 4' Black subsurface layer in bottom of SP
			§ 1

AEHA Form 130, 1 Nev 82

Replaces HSHB Form 18 1 Jun 80. which will be used.

APPENDIX 4.17

DRILLING LOG (The proponent of this form Is HSHB.ES)

PROJECT -	37-26-0127	DATE31 March 1983	7
LOCATION -	Ft Stewart, GA	DRILLERS Hoddinott,	Smithson,
	FST-014	Maners	
DRIII RIG	Acker ADII	BORE HOLE' BH 3	

DEPTH	SAMPLE TYPE BLOWS PER 6 IN	DESCRIPTION	REMARKS
TO THE PARTY.	059	Black sand	
-		Yellow (10yr7/6) medium sand	
_		Light gray (10yr7/2) medium sand	
_	060		Water encountered @ 5'
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AEHA Form 130. 1 Nev 82

Replaces HSHB Form 18 1 Jun 80 which will be used

APPENDIX 4.17

DRILLING LOG

PROJECT LOCATION	740	26-0127 Stewart, GA	DATE — DRILLERS	31 March 1987 Hoddinott, Smithson,
		Γ-014		Maners
DRILL RI	IG	cker ADII	BORE HOLE	, BH 5
DEPTH	SAMPLE TYPE BLOWS PER 6 IN	DESCRIPTION		REMARKS
5	050/051	Ash + burn residue + Brown (10yr5/3) medium Strong brown(7.5yr5/8) Light yellowish brown(White (10yr8/2) medium Black medium sand	sand loamy sand IOyr6/4)mediu	052 is a sample of the burn residue m sand
10-		ВОН		ų.

AEHA Form 130. 1 Nev 82

Replaces HSHB Form 18, 1 Jun 80, which will be used.

APPENDIX 4.17

DRILLING LOG (The proponent of this form Is HSH8-ES)

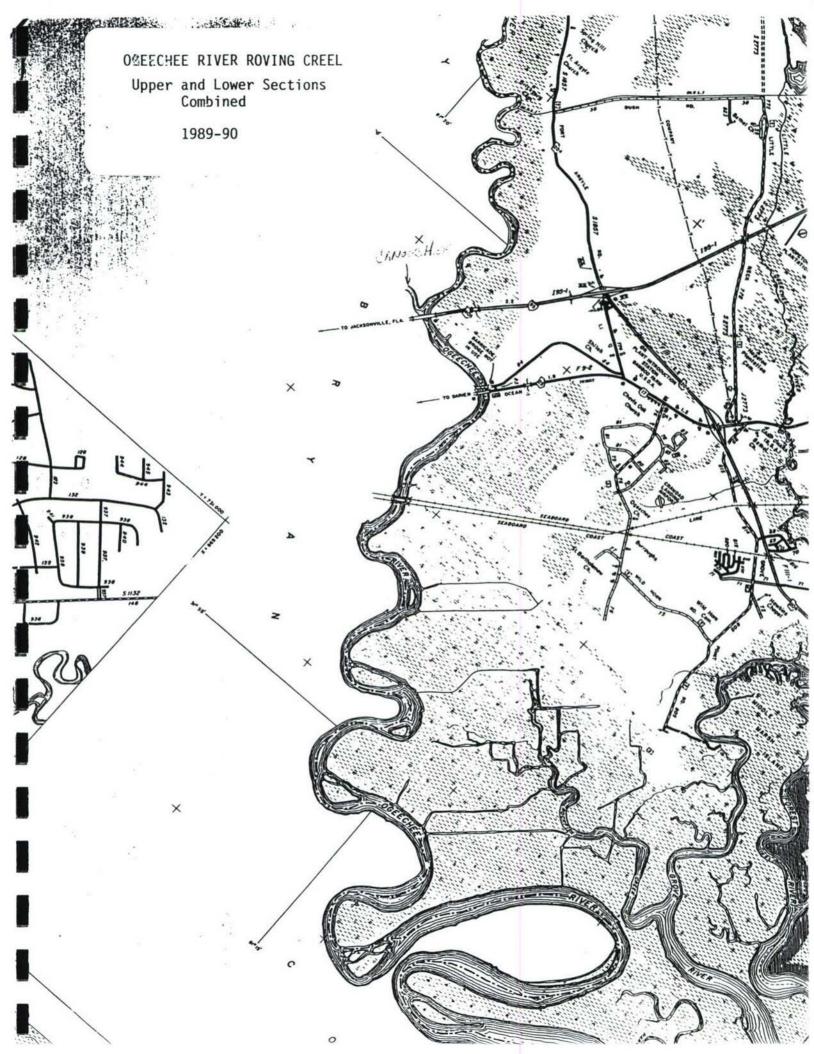
PROJECT -	37-26-0127	DATE31 March 1987
LOCATION -	F.t Stewart, GA	DRILLERSHoddinott, Smithson,
200111011	FST-014	Maners
DRILL RIG	Acker ADII	BORE HOLE BH 6

	SAMPLE		
DEPTH	TYPE BLOWS PER 6 IN	DESCRIPTION	REMARKS
	055	Dark grayish brown(10yr4/2)medium Yellow (10yr //6) fine sand	and 1"thick layer of black residue 6"
-	*-	White (10yr8/2) very fine sand	Below surface
_		Brownish yellow (10yr6/8) fine san	d
-		White (10yr8/2)medium sand	
5	056		Water encountered 05' black sand was found at
_		вон	the extreme lower end o the SP.
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AEHA Form 130, 1 Nev 82

Replaces HSHR form 18 I lun 80 which will be used

APPENDIX E OGEECHEE RIVER CREEL REPORT



STUDY XIII: Savannah and Ogeechee River Creel Surveys

Study Objectives: To estimate current levels of angler harvest and compare to previous creel information and evaluate the effects of legislative/regulatory changes regarding the harvest of striped bass.

A. ACTIVITY

Roving creel designs, species lists and route maps were prepared for Savannah and Ogeechee river estuarine surveys. A creel clerk was located, interviewed and hired for each river. Clerks were supervised during the five-month creel data collection period scheduled from October to March. Data were reviewed and summarized periodically throughout the collection period to identify and correct problems that might be occurring. Expansion of the data was conducted shortly after the completion of the creel data collection period. Tables and a summary report were prepared for this document.

B. TARGET DATES FOR ACHIEVEMENT AND ACCOMPLISHMENTS

The Savannah and Ogeechee river estuarine creel surveys were conducted on schedule between the months of October 1989 and March 1990. Data were summarized and prepared for expansion throughout the duration of the creel survey. Creel data expansion was accomplished shortly after completion of the data collection in March 1990. Tables and a brief summary of the results were to be included in this report. A full year access creel survey of the Ogeechee River freshwater fishery is scheduled to begin January 1, 1991.

C. SIGNIFICANT DEVIATIONS

None.

D. REMARKS

Both the Savannah River and Ogeechee River estuarine fisheries were surveyed from October 8, 1989 through March 10, 1990. Each river was surveyed by one roving creel clerk 5 days per week. Each river had two roving sections that were scheduled equally on a random basis. Survey area on the Savannah River extended from river kilometer 11 upstream to kilometer 44 and on the Ogeechee River from kilometer 20 to kilometer 61. The major emphasis of these surveys was to monitor striped bass fished-for effort and harvest. Other species of interest were included in each survey (Tables 2 and 3).

This was the first in a series of seasonal roving creel surveys to be repeated every third year in an attempt to monitor changes in the estuarine fisheries of each river. Angler harvest on the Savannah River during the 5-month period totaled an estimated 6,572 fish compared with an estimated 9,372 fish harvested from the Ogeechee River. The top three species harvested from the Savannah River were silver perch, spotted seatrout, and channel catfish (Table 2). These three species represented nearly 75% of the total number of fish harvested from the Savannah River

Table 2. Savannah River roving creel survey harvest estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .05 percent, .005 No/h, .005 kg/h, .005 No/ha, or .005 kg/ha.

		Number	27		Weight (kg)	(kg)	Average	Harvest	rateb
Species	Total	SEa	Percent	Total	SEa	Percent	(kg)	No/h	kg/h
Striped bass	24	25	0.4	5	9	0.2	0.23	H	H
Spotted seatrout	1,649	1,326	25.1	743	597	28.4	0.45	0.16	0.07
Flounder	7	9	0.1	П	1	T	0.12	H	T
Silver perch	1,667	871	25.4	108	55	4.1	90.0	0.16	0.01
Red drum	905	554	13.8	670	452	25.6	0.74	0.09	90.0
Croaker/Spot	27	20	0.4	3	2	0.1	0.12	H	H
White catfish	161	56	2.5	136	94	5.2	0.84	0.02	0.01
Channel catfish	1,576	562	24.0	770	405	29.5	0.49	0.15	0.07
Redbreast sunfish	27	20	0.4	3	2	0.1	0.12	H	H
Others	528	219	8.0	176	92	6.7	0.33	0.05	0.02
Totals	6,572	3,161	100.0	2,615	1,285	100.0	0.40	0.63	0.25

a Approximate standard errors b Rates based on estimated total fishing effort of 10,375 hours

able 3. Ogeechee River roving creel survey harvest estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .005 No/h or .005 kg/h. Table 3.

Sologia		Number			Weight (kg)	(kg)	Average		
האברדפא	Total	SEa	Percent	Total	SEa	Percent	Weight (kg)	No/h 12/1	rate
5							10	11/01	kg/ n
Striped bass	255	133	7 6						
Largemouth bass	155	96	7.7	597	122	13.3	1.04	0.02	0.02
Redbreast sunfish	1 718	200	1.7	98	99	4.9	0.63	0.01	0 0
Spotted sunfish	00	500	18.3	210	9	10.5	0.12	0.12	5 6
Bullheads	7.7	4 c	1.0	6	7	0.5	0.10	0.01	
Channel catfish	7 7.00	7,0	0.4	2	2	0.3	0.13		→ E
White catfish	2 4 4 90	0/6	7.97	289	9/	14.5	0.12	0.17	0 0
Red drum	0,000	984	38.3	741	176	37.1	0.21	0 25	70.0
Spotted seatront	7 4 7	39	0.5	39	31	1.9	0.82	, E	
Others	905	330		37	20	1.9	0.50	0.01	- E-
		055	7.6	303	81	15.2	0.34	90.0	0.02
Totals	9,372	1,343	100.0	1,996	259	001		,	
				2000	473	100.0	0.21	99 0	0 1%

a Approximate standard errors b Rates based on estimated total fishing effort of 14,289 hours

estuary in this creel. The top three species harvested from the Ogeechee River were white catfish, channel catfish, and redbreast sunfish (Table 3). These three species represented over 83% of the total Ogeechee River estuarine harvest during this 5-month period. Fish harvested from the Savannah River were generally larger (0.40 kg) than those harvested from the Ogeechee River (0.21 kg).

Striped bass harvest was greater from the Ogeechee River as expected. Although the striped bass fishery was closed on the Georgia side of the Savannah River, some harvest was recorded. It is likely that most of this harvest was from South Carolina waters, but some illegally creeled fish were also included. The majority of the fish observed in the Savannah River creel were age I+ fish as indicated by the average weight (0.23 kg). Most, if not all, of these fish were from a special stocking of approximately 5,000 advanced-sized striped bass fingerlings released into the Savannah Back River in February of 1989. Although some striped bass harvest did occur on the Savannah River, 94% of the total catch of this species was released (Table 4). Protection of the Savannah River striped bass population apparently has been accomplished despite the failure of South Carolina officials to enact a fishing moratorium on striped bass harvest as Georgia did in 1989.

Striped bass size and creel limits for the other coastal rivers in Georgia were also revised in 1989. Anglers are now limited to only two striped bass of a minimum size of 22 inches per day. These new limits were in effect on the Ogeechee River during this creel survey. The percentage of striped bass caught and released in the Ogeechee River creel (69%) seems to indicate that these new limits are being observed by at least some anglers (Table 5). However, the average weight of a striped bass harvested from the Ogeechee River was only 1.04 kilograms (Table 3) while the average weight of a fish 22 inches in length is well over 2.0 kilograms. Greater public awareness of the new regulations and enforcement of the same is needed on the Ogeechee River and other coastal rivers of Georgia having fishable populations of striped bass.

The Ogeechee River experienced a higher level of sport fishing pressure with an estimated 14,375 hours expended over the five month creel survey period compared with 10,375 hours on the Savannah River. Forty-four percent of the effort expended on the Ogeechee River was directed toward a particular species. Of this "fished-for" effort, 47 percent was expended fishing for striped bass (Table 6). This was significantly higher than the 8.7 percent of fished-for effort directed toward striped bass on the Savannah River (Table 7). Anglers on the Savannah River, instead directed most of their fished-for effort (74%) toward spotted seatrout and red drum. The most successful anglers were those fishing for spotted seatrout in the Savannah River. Seventy-one percent of the total harvest of this species was caught by anglers fishing for them (Table 7).

E. RECOMMENDATIONS

 Continue the Georgia moratorium on the harvest of striped bass from the Savannah River despite South Carolina's lack of action.

Table 4. Savannah River roving creel survey estimates for the period from October 8, 1989 to March 10, 1990. I(trace) equals values less than 0.005 No/h and kg/h.

	Fish h	Fish harvested	Fish	Fish released	Tota	Total catch	Total cat	Total catch rates ^D
Species	No	kg	No	kga	No	kg	No/h	kg/h
Striped bass	24		355	81.7	379	87.0	0.04	0.01
Spotted seatrout	1,649		195	87.6	1,844	830.2	0.18	0.08
Flounder	7		0	0	7	6.0	T	H
Silver perch	1,667	107.8	89	4.1	1,735	111.9	0.17	0.01
ked drum	905	8.699	41	30.6	946	700.3	0.09	0.07
Croaker/spot	27	3.1	32	3.9	59	7.0	0.01	H
White catfish	161	135.7	0	0	161	135.7	0.02	0.01
Channel catfish	1,576	770.2	45	21.8	1,621	792.0	0.16	0.08
Redbreast sunfish	27	3.2	0	0	27	3.2	L	H
Others	528	176.1	77	25.5	909	201.6	90.0	0.02
Totals	6,571	2,614.7	813	255.2	7,384	2,869.8	0.71	0.28

 $^{\rm a}$ Estimated weight based on the average weight of harvested fish. $^{\rm b}$ Catch rates based on estimated fishing effort of 10,375 hours.

ible 5. Ogeechee River roving creel survey estimates for the period from October 8, 1989 to March 10, 1990. T(trace) equals values less than .005 No/h and kg/h. Table 5.

	Fish ha	Fish harvested	Fish	Fish released	Total	Total catch	Total catch rate	tch rate ^b
Species	No	kg	No	kga	No	kg	No/h	kg/h
Striped bass	255	265.1	565	587.2	820	852.3	90.0	0.06
Largemouth bass	155	98.1	407	256.4	562	354.5	0.04	0.02
Redbreast sunfish	1,718	209.5	913	109.5	2,631	319.1	0.18	0.02
Spotted sunfish	06	9.1	64	4.9	139	13.9	0.01	H
Bullheads	41	5.5	6	1.1	50	9.9	H	H
Channel catfish	2,498	289.1	1,215	145.8	3,713	434.9	0.26	0.03
White catfish	3,588	740.7	1,363	286.3	4,951	1,027.0	0.35	0.07
Red drum	47	38.6	10	8.5	58	47.1	L	H
Spotted seatrout	75	37.3	58	28.8	132	66.1	0.01	H
Others	905	303.5	240	183.7	1,445	487.1	0.10	0.03
Totals	9,372	1,996.4	5,128	1,612.2	14,500	3,608.6	1.01	0.25

 $^{\rm a}$ Estimated weight based on the average weight of harvested fish. $^{\rm b}$ Catch rates based on estimated total fishing effort of 14,289 hours.

Table 6. Ogeechee River roving creel fished-for estimates for the period from October 8, 1989 through March 10, 1990. NA = Not Any.

		Fished-For	-For		Percent of	Percent of	Average
	Eff	Effort	Success	ess	fished-for	species,	weight
Species	Hours	% Total	No	Kg	total harv.	total harv.	(kg)
Striped bass	2,960	47.0	95	115.5	8.2	37.3	1.22
Largemouth bass	200	3.2	0	0.0	0.0	0.0	NA
Redbreast sunfish	637	10.1	212	19.0	18.4	12.3	60.0
Spotted sunfish	0	0.0	0	0.0	0.0	0.0	NA
Bullheads	0	0.0	0	0.0	0.0	0.0	NA
Channel catfish	166	12.2	335	75.4	29.1	13.4	0.23
White catfish	575	9.1	76	8.6	9.9	2.1	0.13
Red drum	117	1.9	0	0.0	0.0	0.0	NA
Spotted seatrout	271	4.3	12	6.7	1.0	16.0	0.56
Others	166	12.2	423	123.2	36.7	46.7	0.29
Totals	6,293	100.0	1,153	349.6	100.0	12.3	0.30

Table 7. Savannah River roving creel fished-for estimates for the period from October 8, 1989 through March 10, 1990. NA = Not Any.

	T.	Fished-For	d-For		Porcent		
Species	HO	Effort	Suc	Success	fished-for	Percent of	Average
	Sinou	% Total	No	Kg	total harv	species'	weight
Striped bass	216	(total harv.	(kg)
Spotted seatrons	210	8.7	0	0.0	0		
Red driim	7,286	62.8	1.178	505 5	0.00	0.0	NA
	421	11.6			8.86	71.4	67 0
of caker/spot	C		n 1	17.1	0.3		0.43
White catfish	0 0	0.0	0	0.0		2.0	4.23
Channel carfish	0 6	0.0	0	0.0	0 0	0.0	NA
Flounder	99	2.7	3	9 -	0.0	0.0	NA
Stlver nouch	0	0.0	0	•	0.3	0.2	0 33
iver perch	0	0	0	0.0	0.0	0	000
Redbreast sunfish	•		0	0.0	0.0		NA
Others	2 2	0.0	0	0.0	0 0	0.0	NA
	210	14.2	7	7.2	0.0	0.0	NA
F					0.0	1.3	1.03
locals	3,638	100.0	1,191	526.4	0 001	1	
					100.0	α.	

- 2. Encourage increased publicity on the new size and creel limits for striped bass in coastal Georgia rivers and alert law enforcement personnel to the illegal harvest of undersized fish observed in the 1989-90 Ogeechee River creel.
- 3. Continue to conduct creels as scheduled in the study proposal and analyze data as it is obtained.

F. COST \$25,700 Federal: \$19,275

State: \$6,425

Prepared by:

Dennis N. Schmitt, Study Leader

__ Date: __9/20/90

DEVELOPMENT SECTION

A. ACTIVITY

- 1. MORONE FRY PRODUCTION (Segment 17)
 - a. Species: Striped bass and striped bass x white bass hybrid (original and reciprocal) fry.
 - b. Number Produced (single crop production): 5,673,000 striped bass fry; 2,600,500 original hybrid bass fry; and 12,559,500 reciprocal hybrid bass fry.
 - c. Location: Richmond Hill Fish Hatchery. Of 20,833,000 produced, Morone fry were shipped to and/or stocked at the following state and federal hatcheries/ agencies for rearing to fingerlings or for research purposes.

Hatcheries/Other Agencies (fingerling rearing)

No. Stocked/Shipped

	Striped Bass	Original Hybrid Bass	Reciprocal Hybrid Bass
Richmond Hill Hatchery (Ga.) Bowens Mill Hatchery (Ga.) Cordele Hatchery (Ga.) Steve Cocke Hatchery (Ga.) Walton Hatchery (Ga.)	1,140,000	2,600,000	2,225,000 1,914,000 3,510,000 2,010,000 300,000
McDuffie Hatchery (Ga.)	2,311,000		300,000
Bo Ginn NFH	2,220,000		
State of Pennsylvania (Fish Comm)		200,000
SUB TOTAL	5,671,000	2,600,000	10,159,000

APPENDIX F
DAILY MEAN DISCHARGE VALUES FOR AREA SURFACE WATER

To: John Mc Gowin

From: Tim Stamey, USGS, WRD, Geogra

Daily meer discharges for the following sites!

02203000 Canochee Creek No. Clarton

02202500 Ogeechee River Nr. Eden

02202600 Black Creek Nr. Blitchton

02202600 Black Creek Nr. Blitchton

09/25/91

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUM 30.00 STATE 13 COUNTY 30.00 STATE 13 COUNTY 029

Į			D.T			PIONTHAL		232.00	DATUM 3	0.00 STA	TE 17	
*			DISCHA	RGE, CUBI	C FEET PER	SECOND,	WATER YE	AR OCTOR	ER 1988 TO	SEPTEMBE	R 1989	UNTY 029
-	DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR			0,558	
į	1	263	8.5	48	27		1100000	A.K.	MAY	JUN	TUL	AUG
	2 4 5	201 174 218 226	8.5 8.2 9.0 17	42 33 26 23	29 29 28 27	45 42 42 43 41	63 64 94 130 174	61 46 36 31 34	25 33 50 65	1.7 1.6 1.5 1.4	107 138 145 163	113 183 306 275
	6	251	32	21	33		2004-11	34	48	1.3	199	266
	8 9	257 217 176 134	34 32 41 44	19 17 16 15	42 42 39 34	37 35 33 29 25	202 196 177 158	27 19 15 13	46 55 50 39	1.5 1.7 1.7 1.8	358 717 666	209 132 87

FAX 404 986 6874

1.8 1.7 28 1.5 1.5 1.3 49

1.5 1.6 1.8 22 23 24 25 2.5 47 2.3 8.7 6.8 5.8 4.6 3.8

28 29 30 31 3.0 2.5 2.1 ------1.9 801.2 89.6 26.7

EAN EX TIN 1686.3 1284.8 42.8 34.1 34.9 35.9 99.0 54.4 820 8.2 s :FSM -39 -12 -15 -15 1.9 1.2 -45 -15 .44 -13 .43 .23 -17 -17 -16 .51 .18 1.29 .48 1.05 2.10 1.49 1.21 2.34

09/25/91

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUM 30.00 STATE 13 COUNTY 029

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

					DAIL	Y MEAN V	ALUES					
DAY	OCT	VOM	DEC	KAL	FEB	HAR	APR	HAY	JUN	JUL	AUG	SEP
1	393	96	127	305	506	331	146	5.6	1.5	.45	-37	.97
2	376	87	115	313	479	265	158	4.5	1.6	.36	1.1	1.91
3 4	370	82	104	367	465	243	150	3.9	1.9	-40		1.2
4	390	87	92	404	430	226	126	3.4	1.6		1.6	-99
5	344	82	82	374	424	200	96	3.0	1.5	-45 -40	1.0 .85	-94 -85
6	271	75	76	331	513	188	79	2.7	1.5	.33	.80	
7	223	73	71	462	572	173	64	2.4	1.2	.28	-80	-84
8	177	71	136	1440	453	152	54	2.1	1.2		-00	-76
9	129	74	478	4910	381	136	48	2.1		-27	-97	.71
10	98	73	1070	4060	354	125	48	2.1	1_0 .95	.23 .24	1.5	.70 -65
11	91	68	1560	2420	486	118	43	1.9	1.1	-26		
12	92	64	1500	1590	634	113	36	1.9	-92	-29	1-1	-63
13	93	58	1230	1180	766	106	28	1.9	.80	.32	-96	-61
14	96	52	1010	929	695	101	21	1.9	.63	-34	-80	-57
15	92	52	867	732	567	93	21	1.8	1.1	-27	1.5	-58 -56
											1.0	•30
16	84	76	741	577	455	86	19	1.6	1.2	-29 -35	2.0	.55
17	79	86	625	477	427	83	14	1.8	.74	.35	9.3	.50
18	230	105	530	408	453	105	11	1.7	_70	-49	3.3	.49
19	738	133	545	348	632	131	8.9	1.5	-68	.49	2.2	.48
20	1000	122	681	302	790	170	7.5	1.3	.55	.56	1.7	.48
21	1600	97	980	289	980	171	6.8	1.2	-50	-50	1.4	-46
22	1390	83	1190	280	1000	144	6.0	1.4	-49	-46	1.3	-43
23	1000	93	1130	285	941	117	5.2	1.5	.59	-50	1.4	
24	702	108	989	304	818	95	4.6	1.3	-55	.50	1.4	.42
25	450	113	844	316	714	82	4.1	1.3	-49	.46	1.4	.38
26	282	130	621	464	643	70	3.2	1.3	-53	77	4 =	
26 27	215	135	515	732	534	61	2.7	1.2	-53	.37	1.5	-40
28	174	131	453	947	425	52	2.5	1.7	.58		1.2	.39
28 29	142	127	405	829		50	4.3	2.4	.57	.28	1.1	.40
30	119	134	356	681		55	6.3	1.7	.55	.30	1.0	-50
31	105		308	588		116	0.3	1.5	•	.31	1.0	.53
TOTAL	11545	2767	19431	27644	16537	4158	1224.1	65.6	27.75	11.24	48.42	40.74
MEAN	372	92.2	627	892	591	134	40.8	2.12	-92			18.36
MAX	1600	135	1560	4910	1000	331	158	5.6		.36	1.56	-61
MIN	79	52			76/	50			1.9	:56	9.3	1.2
	1.61		71	280	354		2.5	1.2	.49	.23	.37	.38
CFSM		.40	2.70	3.84	2.55	.58	-18	-01	.00	.00	-01	.00
IN.	1.85	.44	3.12	4.43	2.65	.67	.20	-01	-00	.00	.01	.00

09/25/91

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT

STATION NUMBER 02202600 BLACK CREEK NEAR BLITCHTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321004 LONGITUDE 0812918 DRAINAGE AREA 232.00 DATUN 30.00 STATE 13 COUNTY 029 PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES

F-1							LULU					
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TUN	JUL	ALIG	SEP
1	. 47	5.5	14	73	3070	117	296	1590	1660	17	***	
2	-48	4.7	16	110	2650	206	442	1580	5020	21		
3	-46	4.2	26	158	1890	712	480	1430	3690	19		
. 4	.50	4.2	29	191	1370	2110	378	1040	2550	16		
5	-50	3.9	24	187	1060	4020	263	744	1680	17		
_	250	2.,		101	1000	4040	200	144	1000	17		•••
6	-48	3.7	26	160	847	3100	338	643	1130	24		
7	-49	3.3	28	135	678	1960	459	521	757	23		
8	-48	3.2	41	120	594	1380	502	474	473	24		
9	_48	6.3	49	110	561	1050	522	407	306	20		***
10	6.6	64	40	101	560	806	477	310	230	19		
11	37	104	33	128	492	619	465	261	477	20		
12	84	128	31	223	408	465	450	201	177	22		
								245	136	61		7.7.7
13	60	116	29	464	336	358	403	274	106	39		
14	59	91	27	634	280	292	333	291	90	22		
15	49	72	25	465	244	263	279	478	170	17		
16	23	57	22	334	211	253	246	1130	221	61		
17	12	43	21	270	184	241	250	1400	152	244		
18	7-6	33	20	243	167	239	245	1250	123			
19	5.9	25	41	242	155	237	229	999	127		•••	
20	4.7	20	107	620	147	237	226	805	213			

21	3.9	16	204	1150	143	227	290	711	283			
22	14	14	292	1350	138	208	506	1180	179			
23	27	13	285	1060	135	186	527	1670	114	***		
24	33	12	216	907	132	165	492	1730	79	**-		
25	37	11	164	947	131	146	424	1460	58			
26	28	10	127	1160	139	130	339	1110	46			
27	18	9.5	104	1250	139	109	266	813	37		***	
28	13	13	91	1220	127	96	449	552	30			
29	9.7	17	79	1220		91	1050	444	23		•	
30	7.6	16	74	1650		132	1490	541	19		*	
31	6.4		72	2640		183		797	14			
-VANANTANIAN AND AND AND AND AND AND AND AND AND A			Verin-on									
TOTAL	550.74	923.5	2357	19522	16988	20338	13116	26880	19879			•••
MEAN	17.8	30.8	76.0	630	607	656	437	867	663			
MAX	84	128	292	2640	3070	4020	1498	1730	5020			
MIN	.46	3.2	14	73	127	91	226	245	19			
CFSM	.08	.13	.33	2.71	2.62	2.83	1.88	3.74	2.86	••-		•
IN.	.09	. 15	.38	3.13	2.72	3.26	2.10	4.31	3.19		•••	

09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 DAILY MEAN VALUES

			14.				LOCO				*:	
DAY	OCT	NOV	DEC	MAL	FEB	MAR	APR	HAY	JUN	JUL	DUA	SEP
1	585	57	172	126	132	288	458	186	20	323	338	129
2	437	77	152	159	129	305	354	198	16	213		129
2 3 4 5	404	70	144	179	130	493	276	220			310	
1	622	85						220	13	169	320	213
#			138	196	131	693	225	277	12	271	280	429
,	700	217	129	213	126	843	194	276	11	451	242	482
6	637	355	123	215	120	985	181	258	14	665	202	524
. 7	529	425	123	200	115	1100	170	277	14	816	147	611
8	436	448	118	193	113	1110	147	282	17	759	121	591
9 -	362	426	110	190	112	1060	133	255	23	524	134	530
10	363	365	106	177	110	987	192	317	23 35	422	. 128	468
11	314	.291	109	163	107	824	515	567	61	750		
12	242	236	132	153	105	673	800	107	01	352	95	370
13	183	203	136		105	0/3		687	82	379	70	276
15	103	203	156	147	103	552	1090	718	82	407	52	203
14	142	195	163	144	99	456	1520	618	94	364	40	172
15	119	188	163	140	95	411	2160	476	71	305	36	136
16	103	179	167	167	96	364	2280	326	44	242	36	109
17	92	167	185	186	92	318	1910	220	32	253	36 29	111
18	82	125	190	185	87	286	1520	181	62	336	24	111
10	74	92	192	175	. 84	290	1300	154	162	330	46	127
19 20	66	89	195	163	81	257	1300	154	162	324	119	251
Zu		69	173	162	01	21	1070	122	481	274	272	224
21	60	87	186	150	88	226	920	96	678	316	432	158
22	60	82	174	140	151	239	828	89	825	359	512	605
_ Z3	57	86	161	132	201	260	765	83	1160	418	461	958
24	50	165	155	126	250	402	704	61	1470	558	368	1410
23 24 25	48	290	164	121	326	548	651	46	1460	647	258	2060
26	43	373	145	115	343	661	575	36	1200			
27	39	372	135	111	335	708	111	30		736	180	1890
28		312	133	407	232		464	30	925	854	145	2190
20	42	324	128	107	317	686	332	39	748	883	115	2100
29 30	53	248	124	103		646	235	39	624	745	86	1630
30	54	201	119	104	***	596	192	29	490	586	71	1240
31	50	***	117	123		550	***	24		446	84	
OTAL	7048	6518	4575	4802	4178	17827	22161	7187	10926	14397	5729	20345
IEAN	227	217	148	155	149	575	739	232	364	454	185	
IAX	700	448	195	215	343	1110	2280	718	1470			678
IIN	39	57				1710		718		883	512	2190
		31	106	103	81	226	133	24	11	169	29	109
:FSM	-41	_39	-27	.28 .32	-27	1.04	1.33	-42	.66	-84	-33	1.22
N.	. 47	-44	-31	.32	.28	1.19	1.49	-48	.73	.96	_38	1.36
5		. 71										

09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXTON, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109

FAX 404 986 6874

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 DAILY MEAN VALUES

-					Ditt							
DAY	OCT	VOV	DEC	MAL	FEB	MAR	APR	MAY	אטע	JUL	AUG	SEP
1	911 -	190	514	837	1000	948	460	49	32	1.8	1.2	1.3
2	751	181	451	898	950	852	567	35	40	1.8	1.4	1.8
2	723	169	363	964	889	769	641	27	31			1.0
4	689	156	318	1050	841	672	675	27	31	1.6	2.4	1.6
5	650	152		1060					22	1.5	2.0	1.4
,	050	132	295	1000	831	613	699	30	17	1.7	2.1	1.4
6	604	145	266	1080	754	607	640	30	13	1.7	2.0	1.1
7	. 532	132	240	1630	706	594	569	27	9.6	1.7	1.8	-82
. 8	476	138	402	5400	678	548	486	24	7.5	1.7	3.0	1.0
9	451	146	985	7470	629	507	371	22	11	1.5	6.6	1.1
10	440	146	1370	5670	620	481	300	20	6.9	1.9	14	1.1
11	425	137	1650	4020	810	482	251	20	7.3	7.0		
12	373	136		3250	931	448	229	19		2.0	8.5	1.0
13	309	136	1670	2760					7.8	2.9	4.6	-94
13	309	130	1070	2/60	1010	421	214	19	6.2	2.0	3.1	-90
14	260	135	1610	2270	965	401	192	18	5.8	2.4	2.3	.75
15	229	161 .	1620	1860	848	387	169	16	5.1	2.2	2.0	.76
16	212	280	1640	1570	765	377	147	14	4.8	2.1	2.1	.79
17	227	288	1570	1370	828	396	131	13	4-1	2.2	3.7	.86
18	395	263	1470	1180	897	546	117	11	3.8	2.8	3.3	.77
19	1020	321	1440	1100	1090	623	105	10	3.4	3.6	2.3	-11
20	1300	363	1580	1010	1300	686	94	9-1	2.8	2.8	1.9	.78 .87
	PO100000					STATISTICS.			2.0	2.0	1.9	-01
21 22	1340	370	1770	980	1450	669	85	9.0	2.5	2.0	1.5	1.1
22	1180	352	1810	1030	1540	579	76	9.4	2.5	1.9	1.2	1.3
23	923	357	1660	1050	1550	547	69	8.8	2.5	1.9	1.1	1.5
24	711	419	1480	1080	1510	502	60	8.1	2.4	1.9	1.0	
24 25	558	468	1330	1090	1490	444	50	7.5	2.3			1.7
			N=ROLU			444	50	1.5	2.3	1.9	-98	1.6
26	469	571	1220	1110	1410	360	41	7.2	2.2	2.5	.99	1.5
27	389	601	1130		. 1250	281	33	6.6	2.2	2.5	1.3	1.5
28	316	555	1020	1160	1070	231	30	7.5	2.0	1.9	1.3	1.7
29	269	548	879	1160		203	47	16	1.9	1.5	1.2	1.9
30	234	525	797	1090		212	57	41	1.9	1.6	1.2	2.1
31	207		766	1050		303		32		1.7	1.1	
- OTAL	17573	8541	35096	58359	28612	15689	7605	593.2	263.5	63.2	83.17	36.74
IEAN	567	285	1132	1883	1022	506	253	19.1	8.78			
WX	1340	601	1810	7470	1550	948	699	49		2.04	2.68	1.22
									40	3.6	14	2.1
IIN	207	132	240	837	620	203	30	6.6	1.9	1.5	-98	.75
:FSM	1.02	-51	2.04	3.39	1.84	.91	.46	_03	-02	.00	-00	-00
N.	1_18	-57	2.35	. 3.91	1.92	1.05	.51	-04	-02	_00	-01	_00
			1	7.								

09/25/91

STATION NUMBER 02203000 CANOOCHEE RIVER NEAR CLAXION, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321105 LONGITUDE 0815320 DRAINAGE AREA 555.00 DATUM 80.50 STATE 13 COUNTY 109
PROVISIONAL DATA
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUM 19.64 STATE 13 COUNTY 103

DISCHARGE,	CUBIC FEET	PFP	SECONO					100		OINTE	. 13	
DISCHARGE,	-/*:0000.0 0000 0		DAIL	MEAN	VALUE	OCTOBER ES	1988	TO	SEPT	EMBER	1989	,

					DAI	LY MEAN	VALUES	DEK 1ASS	TO SEPTEMBE	R 1989		
Y	OCT	NOV	DEC	LAN						***************************************		
				250	FEB	HAI	R APR	MAY	JUN	14200		
	2540	457	691	637					JUN	JUL	· AUG	SEP
2	2310	449	679			1100	2300	2860	1220			our.
5	2160	442	666			1200	2320		644	1750	2730	****
	2010	444	000	686		1370	2330	2740	584	1700		.0.0
;	1770	444	651 637	722	785	1560		2580	527	1660	2010	986
	1770	461	637	755	775	1810		2330	473	1630	~ 120	1020
	400					1010	2400	2120	426		2360	1080
	1630	492	624	788	7/0				450	1550	2320	1110
	1560	557	615	819	769	2130		2000	101			
9	1490	. 610	608	019	769	2480	2620	1900	406	1550	2290	1130
	1390	650		849	769	2840	2770		386	1550	2230	1130
	1270	681	610	881	765	3200	2820	1800	355	1580	2130	. 1200
		061	619	914	758	3520	2020	1740	343	1510	2030	1340
	****	-	v. service			3720	2770	1850	340	1350	2020	1490
	1180	703	637	959	754		4			٥٥٥	1830	1620
	1120	729	653	1010		3700	2710	1990	350			11000000
	1060	761	664		749	3690	2630	2070		1190	1560	1710
	1000	788	666	1070	744	3530	2760	2080	371	1070	1360	1690
	964	806	000	1130	739	3350	3060		417	957	1250	1680 1550
		000	655	1190	734	3220		2000	490	875		1250
	948				5.7.4	٠	3530	1930	583	900	1270	1370
	940	807	648	1250	728	****	122-114			200	1350	1190
	963	787	648	1300		3140	4020	1950	691			
	999	759	662	1330	726	3080	4330	2030	824	927	1470	1030
	1050	734	678	1330	725	2980	4440	2070	024	844	1530 1580	907
	1080	708	6/6	1310	. 722	2880	4450		999	778 .	1580	817
		100	685	1250	718	2740		2040	1190	826	15/0	817
	1070	470			5/2-5/1	6140	4500	1970	1360 .	935	1540 1490	777
		675	689	1190	710	2500	2.200			,,,	1490	764
	948	640	688	1160	710	2580	4540	1900	1410			
	754	622	687		716	2440	4640	1860		961	1420	784
	628	643		1130	746	2320	4970	1850	1250	944	1330	1630
	571	686	688	1120	797	2240	5480		1020	1030	1260	2190
		DOO	689.	1100	846	2150		1830	935	1220	1280	
	-	********		*		2130	5590	1770	1030	1550		2760
	538	709	686	1070	- 899	2222			3.555	1336	1470	3370
	509	713	679	1040	958	2090	5150	1690	1300	****		
	488	716	672	996		2040	4500	1550		1990	1360	3820
	481	712	660		1020	2030	3850	1330		2370	1230	4160
	478	702	(60	953		2070	3300		1850	2630	1210	4330
	467		652	916	***	2160	3000	1050	1910	2820	1130	4330
	101		646 .	890 .		2250		851	1850	2940	1030	4250
	75/54	AMERICAN P.				الاعت		724		2900		4010
	35426	19643	20432	31062	22004					-900	991	
	1143	655		1002	21901	77890	106600	58455	25934 44		The state of the s	
	2540	807	691		782	2513	3553	1886	The second secon	487	51081	55085
	467	442		1330	1020	3700	5590			500	1648	1836
	-43		608	637	710	1100	2300	2860	1910 2	940	2730	
	-50	-25	-25	-38	-30	-95	1 7/	724	340	778	991	4330
	-30	-28	-29	-44	.31		1.34	.71		.57		764
			(30)		-51	1.09	1.50	.82			.62	-69
							*	41		-65	-72	-77
			*								5.6	E-9 E-1

09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUN 19.64 STATE 13 COUNTY 103

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

2			100		DAI	LT MEAN V	ALUES						
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		200		+	
		*2 Name			1.77	1014	~~	PAL	JUN	TIT	AUG	SEF	,
1	3630	1330	1720	3970	3680	4710	3150	850	534	400		(2.22)	
2	3470	1240	1700	3690	3660	4610	3400	848	492	190	274	236	ò
3	3220	1160	1640	3480	3660	4630	3370	849		190	236	227	-
- 4	3030	1080	1570	3340	3690	4740	3160	842	482	152	227	210	1
5	2840	1010	1520	3240	3750	4830	2940	827	491	146	218	172	2
	- 2000		7			1030	2,40	921	493	140	197	152	
6 7	2670 2520	957	1470	3180	3710	4740	2790	809	469	134			
		922	1450	3420	3620	4470	2720	805	444	128	184	152	
8	2394	893	1540	4550	3460	4070	2670	816	416		172	152	
9	2270	874	1870	6480	3280	3660	2620	832	396	122	184	146	į.
10	2250	864	2190	8980	3180	3320	2540	861	397	116	210	146	
11	2470	861	25.00		14240000	150,450		1000	471	114	254	140	
12	2940	864	2570	9240	3220	3030	2430	877	435	114	294	***	
13	3650	865	2890	8540	3170	2780	2270	862	424	116	301	134	î
14	4640	865	. 3140	7840	3170	2600	2130	806	393	111	288	128	ij
15	5480		3270	7410	. 3150	2470	2020	747	373	106	274	128	
13	,7400	875	3420	7400	3080	2420	1930	711	372	116	281	128 122	
16	5530	919	3620	7490	2000						ш.	122	
17:	5020	943	3870	7310	2990	2460	1830	702	381	134	301	122	
18	4760	1000	4200	6850	2950	230	1750	712	397	160	314	116	
19	4620	1080	4620	6320	2910	2730	1690	732	412	172	320	116	
20	4060	1140	5080		2980	2800	1630	751	406	197	267	111	
	1000	1140	3000	5840	3120	2830	1550	762	370	218	274	111	
21	3750	1180	5440	5530	3320	2790	1470	761	1000000		(3000)		
22	3400	1210	5820	5340	3600	2700		/61	330	227	245	116	
23	2970	1260	6200	5150	3950	2620	1390	751	298	236	227	116	
24	2580	1290	6370	4920	4310	2570	1310	729	275	236	218	e128	
25	· · 2280	1320	6270	4670	4700	2520	1240	686	257	245	210	e120	٠
			02.0	-0/0	4100	2520	1190	632	239	254	197	e120	
26 · 27	2050	1390	6000	4540	4940	2460	1120	580					
27	1890	1480	5630	4320	4980	2390	1050	529	222	274	184	e120	
28	1750 .	1560	5250	4080	4870	2320	981	505	208	281	172	e120	
29	1620	1640	4900	3920		2300	940	555	203	307	160	e120	
30	1520	1780	4590	3790		2410	880	633	190	255	160	e120	
31	1430		4270	3720		2760		618	197	274	184	e120	
-	÷		72.000000000000000000000000000000000000					010	12000	254	227		
EAN	96700 3119	33772	114090	168550	101100	98330	60161	22980	10996	5752	7254		
AX .		1126	3680	5437	3611	3172	2005	741	367	186		4141	
	5530	1700	6370	9240	. 4980	4830	3400	877	534	307	234	138	
IN	1430	861	1450	3180	2910	2300	880	505	190	106	320	236	
FSM	1-18	-42	1.39	2.05	1.36	1.20	-76	-28	-14		160	111	
и.	1.36	-47	1.60	2.37	1.42	1.38	-84	.32	-15	.07 .08	-09	-05	,
e E	stimated	79.		4.			353		•13	-00	_10	-06	

FAX 404 986 6874

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - USGS GEORGIA DISTRICT

09/25/91

STATION NUMBER 02202500 OGEECHEE RIVER NEAR EDEN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 321129 LONGITUDE 0812458 DRAINAGE AREA 2650.00 DATUM 19.64 STATE 13 COUNTY 103
PROVISIONAL DATA
SUBJECT TO REVISION

		DISCH	ARGE, CUB	IC FEET P	ER SECOND	, WATER	YEAR OCTOBE	R 1990 TO	SEPTEMBE	R 1991	SORTECT TO	KEA1210M
ı					DAI	LY MEAN	VALUES					
DAY	OCT	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	4850	1520.	1740	11300	2740	3300	4920	(000	4174		2200000
	116	4390	- 1460	1840	12700	2920			4000	1430	4620	15000
3	111	3990	1400	1930	14900	3430		4780	4820	1360	5850	12900
3 4	106	3580	1350	2030	18200			4790	5320	1280	7580	••-
5	101	3250	1310			4150		5240	5360	1230	9130	
,	101	پاک	1510	2110	20800	5560	3820	5610	4900	1190	8940	
6	96	3000	1280	2150	21100	7870	5520	5880	4230	1130	04.00	
7	106	2840	1270	. 2150	19200	10400		5840	3590	1080	9160	
8	106	2740	1280	2110	16300	16400		5540			10700	
9	116	2680	- 1310	2050	13900	22100		5110	3130	1080	11600	
10	146	2810	1360	2000	12600	22500			2750	1060	10900	
١.٠	140	2010	1500	2000	.12000	2200	7040	4820	2410	1040	9200	
11	254	2700	1400	2090	11800	19900	6520	5000	2120	1050	7390	
-12	353	2550	1420	2260	. 10900	16900	6110	5570	1850	1030	5840	•
13	626	2380	1420	2400	9870	15000	5800	5890	1600	1040	4780	
14	873	2270	1420	2550	9060	13500		5690	1490	1070		
15	1210	2280	1440	2690	8330	11800		5260	1510	1090	4120 3740	
. 16	1620	2390	1//0	2000	-			0000000	Si .		0.40	
17	2560	2510	1460	2820	7550	10200		4760	1520	1170	3510	
			1490	2880	6770	8820		- 4440	1460	1540	3400	
18	6180	2570	1520	2870	6070	7740		4400	1350	1740	3300	
19	23200	2610	1580	2920	5420	6910		4690	1250	2050	3290	
20	26300	2630	1690	3420	4830	6280	4660	4890	1210	2200	3710	
21	. 23000	2610	1800	3830	4370	5690	5330	5330	1740	-		
22	17600	2530	1820	4330	3960	5170	6090		1240	2120	4590	
23	12800	2400	1870	4750	3620			5480	1320	1910	5330	
24	9330	2260	1900	5210		4750		4750	1480	1790	5670	
25	7050	2160	1910		3370	4410	6200	4110	1680	1850	5780	
-	1030	2100	1910	5910	3170	4070	6130	3640	1920	2350	5910	
	5790	2060	1870	6400	3000	3780	5990	3370	2010	2750	7610	•••
27	5160	1960	1830	6930	2870	3560	5600	3290	1880	3100	11300	
28	5300	1840	1790	7570	2790	3410	5380	3310	1670	3560	14900	
28	6040	. 1710	1760	7960		3270	4770	3320	1540	3870		
30	6060	1590 -	1730	9020		3270	4650	3290	1470		13800	
31	5480		1710	10100		3250	400	3490		3960 . 4000	13700 15600	
DTAI	1/70/2	00470		*****		AND ADDRESS OF THE PARTY OF THE						(3,3.5)
DTAL	167912	80140	48370	119020	268750	259750	160120	146500	72080	57120	234950	
EAN	5417	2671	1560	3839	9598	8379	5337	4726	2403	1843	7579	
AX .	26300	4850	1910	10100	21100	22500	8410	5890	5360	4000	15600	
LM	96	1590	1270	1740	2790	2740	3230	3290	1210	1030	3290	
FSM .	2.04	1.01	.59	1.45	3.62	3.16	2.01	1.78	.91	.70	2.86	•••
1.	2.36	1.12	.68	1.67	3.77	3.65	2.25	2.06	1.01	.80	3.30	
										100000	1. 7. 1. 1. 1. 1. 1. 1. 1. 1.	

09/25/91

STATION NUMBER 02226000 ALTAMAHA RIVER AT DOCTORIONN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNTY 305

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

	YAC	ост	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	ALIG	SEP
ı	1	4990	2600	3460	3480	4400	10700	15600	14700	4290	17700	400000	
7	2	4520	2570	3410	3690	4480	11000	15700	12300			19300	6200
	3	4320	2560	3380	3700	4380	10600	14800	9990	4010	17700	18800	7000
_	4	4470	2620	3470	3680	4250	10200	13500		3760	16800		7950
	5	4870	2750	3730	3870	4160	10800	12500	8580	3550	15500	16800	8440
				51,50	2010	4100	10000	12500	8130	3380	14400	15800	7730
J	6	5110	3000	4020	4490	4140	11900	11600	8810	3270			1000204100
	7	5100	3360	4220	5270	4170	13100	10400	9880	3220	14000	15300	6800
	8	5060	3660	4320	5960	4280	14300	9120	10600	3180	14100	14800	6490
ı	9	5220	3790	4380	6290	4280	15400	8610	10900		14200	14000	6390
ĸ	10	5560	3750	4350	6340	4180	16400	8910		3210	14300	13000	6240
3			3120	4330	0040	*100	10400	9710	11000	3260	14300	11100	6020
	11	5870	3700	4180	6350	4080	17200	9870	10600	3500	13600	0460	
	12	5960	3770	3970	6250	4080	17900	11000	9810	4150	13000	9160	5800
	13	5810	3970	3820	6130	4070	18100	12400	9670	5270		7680	5420
	14	5450	4070	3810	6250	3970	17800	14200	10300	6280	12800	6730	4880
ě	15	4930	3960	3830	6230	3850	16800	16300	11000		12600	6050	4490
				5.20	-	3000	10000	10300	11000	6900	11900	5560	4340
	16	4390	3780	3830	5870	3720	15300	18600	11600	7310	11300	5320	****
8	17	3940	3690	3780	5500	3610	13500	21300	12000	7440	10700	5340	4180
3	18	3620	3650	3730	5330	3520	12200	24600	12100	6900	10400	5220	3990
-	19	3410	3620	3710	5270	3450	11300	27400	11100	6030		5030	3890
_	20	3240	3580	3690	5230	3400	9990	29200	9470	5590	10300	4880	3810
			- 1			2,00	7770	E7200	7410	2290	10300	4910	3630
	21	3090	3500	3640	5510	3400	8800	30500	8540	6120	10700	5020	3540
3	22	2970	3400	3610	5700	3540	8220	31400	8060	7080	11400	5230	3670
	23	2890	3420	3670	5590	3720	7740	31800	7640	8310	12300	5210	
-	24	2840	3560	3750	5360	4200	7540	31700	7160	9590			3840
	25	2770	3700	3700	5010	5570	8020	30900	6450	10900	13200	5020	3970
	200	525507676		-	2010	33.0	0020	30,00	0450	10900	14200	4870	4140
W	26	2670	3780	3550	4640	7190	9070	29500	5750	12200	15200	4910	4840
	27	2600	3810	3450	4370	8520	10600	26800	5380	13200	16400	5080	e5000
	28	2590	3770	3400	4150	9730	11900	23200	5120	14400	17600	4970	
	29	2590	3640	3370	3970		12900	19900	4710	15600	18700		e6600
	30	2610	3520	3330	3910		14000	17200	4500	17100		4730	6740
-	31	2620		3330	4130		15000		4450	17100	19400	4930	6950
			H		1100	1 (6.5.6)	13000		4420		19600	5550	
	JATC	126080	104550	115890	157520	126340	388280	578510	280300	209000	438600	272860	1/7000
	EAN	4067	3485	3738	5081	4512	12530	19280	9042	6967	14150	8802	163980
Ţ	W.	5960	4070	4380	6350	9730	18100	31800	14700	17100	19600		5466
	EN	2590	2560	3330	3480	3400	7540	8610	4450	3180	10300	19300	8440
	"SM	.30	.26	.27	-37	-33	.92	1.42	.66	.51		4730	3540
	1.	.34	-29	-32	-43	-35	1.06	1.58	.77	.57	1.04	-65	-40
			Denti Ser	5.00	270 5						1.20	.75	.45
3	e	Estimated											

09/25/91

STATION NUMBER 02226008 ALTAMAHA RIVER AT DOCTORTOWN, GA. STREAM SOURCE AGENCY USGS
LATHTUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNTY 305

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 DAILY MEAN VALUES

_												
'AY	OCT	Nov	DEC	JAN	FE	B MAR	APR	MAY	JUN		12450	
1	7500	5440	7490	17000	2774				OUN	JUL	AUG	SEP
2	8330								4580	2600	****	2/20/2
3	8950					48700		7370	4630	2530	4510	2690
4	9470				27800	50500	51400	7400	5140	230	3980	2940
_ 5	9990	1000		17100	27700	50700	43700		5440	2490	3690	2910
• •	3330	4460	6680	. 17900	27500	3 49300				2430	3410	2690
6	10600		92425				0.500	. 1130	5560	2360	3100	2510
7		4450	6470	19000	27500	46500	32700	7910	F710	2.5		
	11300	4490	6150	20800	27900		28700	7700	5710	2280	2890	2450
8	12200	4690	6070	23300	28700		25000		5580	2200	2780	2650
9	13300	4840	6770	27300	29700			7210	5130	2130	2740	2900
10	15300	4940	8070	37900	30600		21800	6930	4900	2100	2760	3020
			GROW.	41,700	30000	50000	19200	6680	4940	2080	2740	2990
11	18700	5580	9390	48200	30800	200				100000	21.40	SAAA
12	26800	6250	11300	51500			17300	6340	5050	2050	2950	2000
13	38200	6630	13000	52100	29400		15900	6230	4780	2060	3230	2900
14	43300	6880	14300		27900		14300	6370	4560	2070		2910
15	43600	6970	15500	51000	26500		13200	6810	4390	2060	3320	2930
	1000	0774	12500	48800	25000	19300	12900	7210	4190	2060	3360	2860
16	42400	6730	4.0000				*		4170	2000	3290	2700
17	40100	6480	16900	46200	23600	18600	12800	7290	3940	2000		
18	38500	6460	18200	43800	. 22900	18300	12800	6830	3690	2080	3180	2540
19	34900	6590	19900	41500	22600	18100	12800	4350	3500	2050	3210	2510
20	29800	6690	21700 .	39300	23100	· 17800	12500	6260		2080	3290	2650
20	24900	6860	23000	37000	24400	17700	11600	6310	3350	2080	3330	2680
24	25500					105115000	11000	0310	3240	2150	3240	2600
22	26100	7180	23600	34200	25908	17708	10700	6200	74	-		CONTRACTOR OF THE PARTY OF THE
×2	21900	7310-	- 24300	31000	27700	18000	10400	6040	3180	2310	3070	2610
-3	16600	7030	25600	28200	29500	18600	10300		3090	2330	2960	2790
24	12000	6910	26500	26400	31100	19300	10000	5730	3050	2400	2840	3060
	9300	7710	26600	25200	32800	20400	9170	5250	3090	2550	2680	3280
	4200		- 10		*****	20400	7170	4810	3050	2650	2580	3400
26 ?7	7730	8640	26100	24700	34700	23500	0000			1.4		5400
-:7	6670	9140	25000	24200	37000	32600	8250	4700	2940	2860	2460	3300
28	6190	9360	23600	24300	40500		7500	4830	2860	3500	2390	3030
.9	5970	9220	22100	25100	40300	46700	7410	5090	2800	4250	2340	2790
1	5740	8340	20500	26100		58800	7470	5330	2720	4780	2360	2/90
1	5640		18900	27000		67000	7410	5250	2640	5050	2490	2590
			10,00	27000	*	70000		4850		4940	2520	2460
ITAL	587080	194220	495400	970700		12222200				1310	2520	
-AN	18940	6474	15980		798100	1030800	611210	197910	121720	81560	07/00	
X	43600	9360		31310	28500	. 33250	20370	6384	4057	2631	93690	84340
AN X	5640	4450	26600	52100	40500	70000	66800	7910	5710	5050	3022	2811
ZX	1.39		6070	16800	22600	17700	7410	4700	2640	2050	4510	3400
	1.61	-48	1.18	2.30	2_10	2.44	1.50	-47	.30		2340	2450
400	1.01	53	1.36	2.66	2.18	2.82	1.67	.54	-33	-19	.22	-21
						ALTERNATION OF THE PARTY OF THE	27,700		-33	-22	-26	-23

STATION NUMBER 02226000 ALTAMAHA RIVER AT DOCTORIDAN, GA. STREAM SOURCE AGENCY USGS
LATITUDE 313916 LONGITUDE 0814941 DRAINAGE AREA 13600.00 DATUM 24.48 STATE 13 COUNT 24.48 STATE 13 - COUNTY 305 PROVISIONAL DATA

SUBJECT TO REVISION DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAILY MEAN VALUES OCT NOV DEC JAN FEB MAR APR MAY HUL JUI ALIG SEP ------------R ------------.-----... ---------... ------------------0; ---------... ITAL AN -------------48 -49 _40 1.35 2.96 3.05 1.73 1.63 -79 1.05 ----56 .55 -47 1.56 3.08 3.51 1.93 1.88 .88 1.21

APPENDIX G FORT STEWART WELL DATA

L. 1 NO.	Location	Clastry Classes	Croots of	Q⊕1,9 T.√10 e.s	Reting	Hotor CHP3	Systems Facilities Type	97.00.00 97.100.00 97.100.00 97.100.00 97.100.00	Applications
-	1144. P00933.	<u>-</u>	451/016	10" vertical Turbine, Jecural Accester	0061	82	1-	1	0,0,0,0,0,0
N	11dg. POONSA. Herd Fond.	·	4707600	Turbine, Jecurel	1 400	1.25	1	;	A, O, C, O, C, C, 11
e	13.75 St. 60.4	Ğ	035/386	16" verticel Turbine, Peakedy Occasion	0071	125	1	ŀ	A, 0, C, 0, C, 7, 11
۲	0144. 109961. 1215 St. and Multann Ave.	~	164/002	ic" vertical Turbine, Jacoral Becater	700	- 23	i	}	0,8,0,0,0,0
ຕ	Bldg. TO7731, E. Live Circle, Wright Anf	0	374/472	O" Peabody Vertical, Turbine, Aurora Dooster	000	ទ	Promote Promote	0,000	N.O, E, F, H
9	114. Low Cirol.	0.	219375:00	O" Vertical Turbine, Jacuszi Booster	000	30	1	į	A, D, C, E
۲,	T16009, Taylors Creek	0	360/160	n" Verticel Turbine, Jecussi Beceter	200	ຄ	e.083e.d	0,000	P, C, E, 10
0	Goop Oliver	0	451/706	5" Vertion! Turbine, Aurora	700	0	9.586	12,000	A, 0, C, N, E, H
6	01dg. 519222	v	403/560	1" Vartical Turbine	173	10	0.04.0.1	3,000	B, C. D, E, H, 1
0	Evens Orey Heliport	v	404/600	4" Vertical Turbine, Jocusti Booston	56.	č	F. Leves to d	150,000	0, 0, 0, 1, 1
1	P. 1.2006 Chancel Llon Supply Point	ς.	00:2/	Justine, Jacobal	25	r,	e.1055.02.d	009	A, C, E
;	Ridg. Po8330, Skeetrange Holbrook Fond	τ ο ο ο	509/	Submoralisto	OD	п	3.50 F. C.	513	Y * 7
:	Comparound	و ا ا	509/	Submersible of BO'depth	00	rr.	9.0 sto 16.	e .	ر بر

Source: Geraghty & Miller, Inc., February 1991

and recording flow meter

CHARACTERISTICS OF POTABLE WELLS AT THE MAIN CANTONMENT AREA

Diameter D Well Inches F	Feet	Feet	* (M4D)	Flow (GPM)
7 1	816	451	1,750	950
	200	393	1,400	1,400
3 C	7 2 0	436	1,400	1,400
34.	יי מ מ	4.39	1.400	1,400
11 16	779	560	1,000	1,000

No well characteristics such as diameter, well depth and casing setting are presented for the outlying wells in reference 2, except for the well's rated pump rates (Table D-4).

PUMP RATED FLOW IN THE OUTLYING POTABLE WELLS TABLE D-4.

Well	Area	Total Flow Ca	al Rated v Capacity	Standby Power
2	Wright Army Airfield	500	GPM	Yes
ı ve	Wright Army Airfield	500	GPM	No
	Creek	500	GPM	Yes
α	Camp Oliver	400	GPM	Yes
0 0	TO THE WILLIAM TO THE TABLE	175	GPM -	- Yes
101	Evans Basefield	190	GPM	Yes
) I	+	75	GPM	No
1	Holbrook Pond (Skeet Range)	80	GPM	No
1	Holbrook Pond (Camparound)	80	GPM	No

APPENDIX H
FORT STEWART MONITORING WELL LOCATIONS

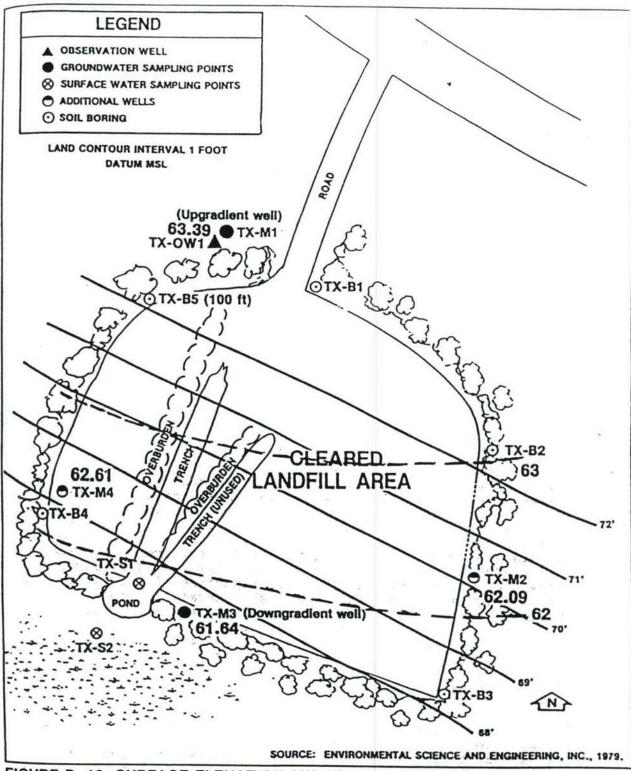
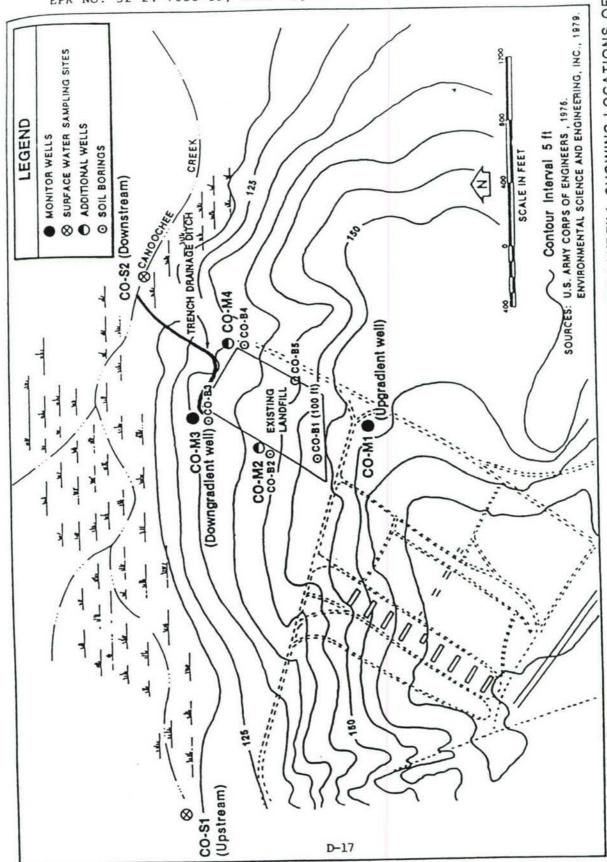


FIGURE D-10. SURFACE ELEVATION AND WATER TABLE CONTOUR MAP OF THE TAC-X LANDFILL SHOWING LOCATION OF TWO GROUND-WATER MONITORING WELLS AND TWO WELLS DRILLED FOR ADDITIONAL WATER LEVEL DATA

Source: Army Environmental Hygiene Agency, August 1988



TWO GROUND-WATER MONITORING WELLS AND TWO WELLS DRILLED FOR ADDITIONAL WATER LEVEL DATA FIGURE D-8. SURFACE ELEVATION CONTOUR MAP OF THE CAMP OLIVER LANDFILL SHOWING LOCATIONS OF

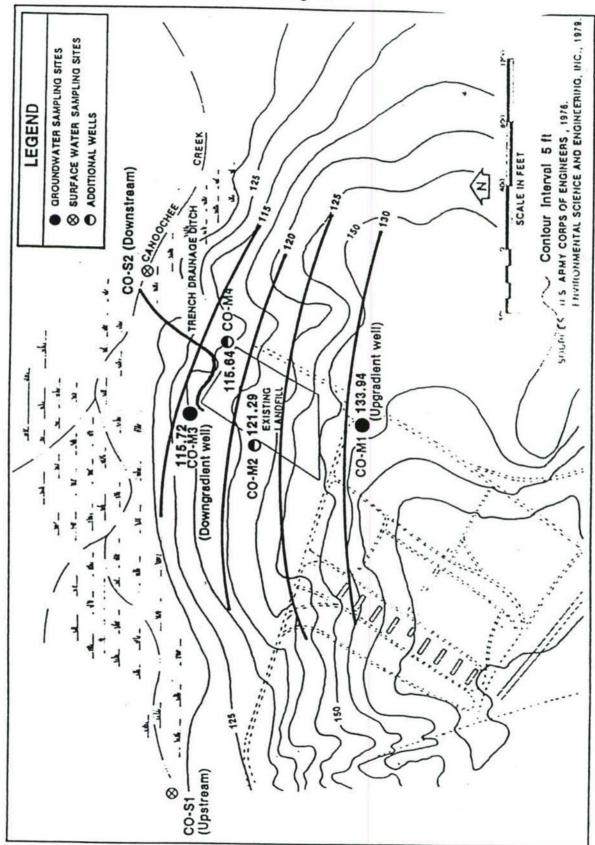
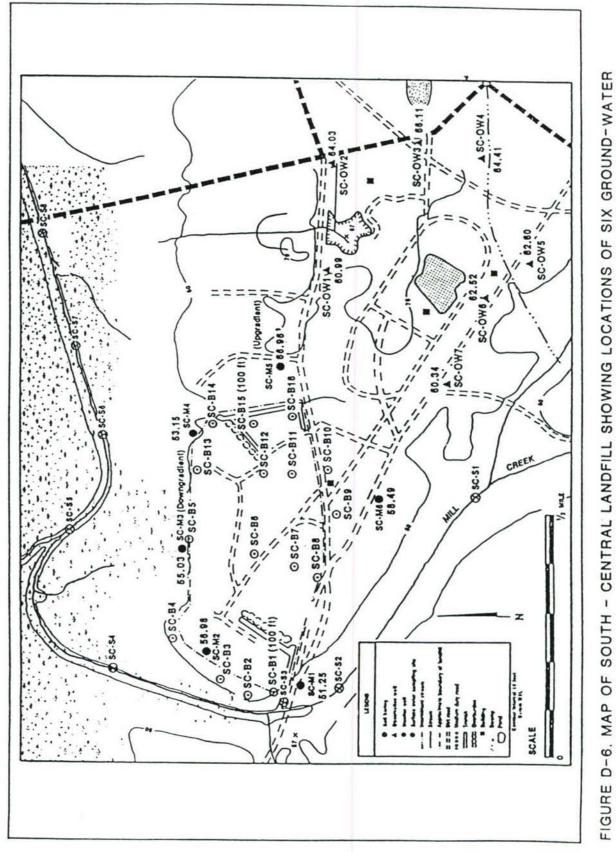


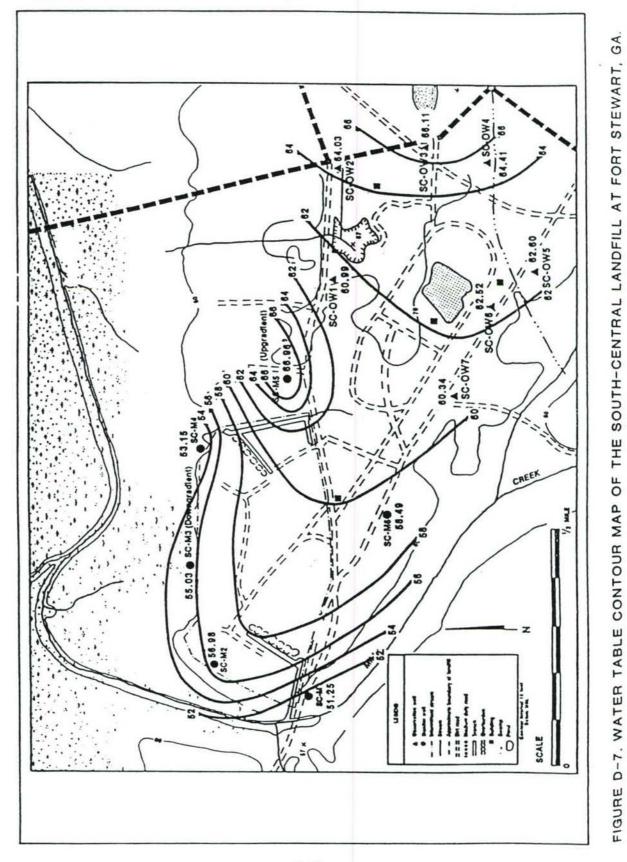
FIGURE D-9. WATER TABLE CONTOUR MAP OF THE CAMP OLIVER LANDFILL AT FORT STEWART, GA.

D-18



MONITORING WELLS AND SEVEN OBSERVATION WELLS

D-14



D-16